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News

# LUBERANE-PROPANE

News

25¢

Technology

When Peace Comes, it will be Grand



THE thousands of Grand Ranges in service today are the best Grand Range salesmen you could have for the new line of ranges we will have available after the war. Women who have once enjoyed Grand's efficiency and convenience will not easily be sold any other brand.

But just to make sure, Grand is now preparing new features . . . new ideas . . . that will make the next line a *must* for every woman who needs a new range. For example, that line will feature a CP Range.

With a CP (Certified Performance) Seal added, your line of post-war Grands will be an irresistible attraction for every homemaker!

*Grand*

**GAS RANGES**

GRAND HOME APPLIANCE COMPANY  
CLEVELAND, OHIO

MARCH, 1944



## CAN YOU TELL YOUR HACKNEY CYLINDERS APART?

PROBABLY NOT—for Hackney Propane-Butane Cylinders of the same type not only look alike but *are* alike, inside and out.

Because uniform size, weight, strength and capacity are vitally important in avoiding costly losses and in helping to keep customers satisfied, the users of Hackney Cylinders recognize uniformity as another important advantage built into the product by Pressed Steel Tank Company.

The *uniformity* of Hackney Cylinders starts with the chemical and metallurgical research that is utilized in the selection

and testing of raw materials. And it is maintained throughout every step of their manufacture by modern heat-treating and quality control equipment, which make Hackney uniformity more than "skin deep."

"Tomorrow," the advantages of Pressed Steel Tank Company's product development work and volume manufacturing experience will be available to every concern.

To meet today's needs, Hackney L-P Gas Cylinders can be furnished where priorities are obtainable. Write today for full details.

# Pressed Steel Tank Company

GENERAL OFFICES AND FACTORY · 1487 SOUTH 66th STREET

Milwaukee, Wisconsin

CONTAINERS FOR GASES, LIQUIDS  
AND SOLIDS





# 2 Good Investments

For your post-war comforts and luxuries, for a quicker victory, and for a secure, safe America, buy war bonds.

Invest your money now, at a generous rate of interest, in war bonds. It's a good investment.

Anchorgas also is aiding our nation at war. As leading producers and marketers of Butane and Propane, Anchor is serving on both the home and industrial front.

Tie up with Anchor now. It's an investment in your future and an assurance of dependable, high quality fuels.



**ANCHOR**  
PETROLEUM COMPANY  
TULSA, OKLAHOMA  
BUTANE - PROPANE



# BUTANE-PROPANE

## News

Reg. U. S. Pat. Off.



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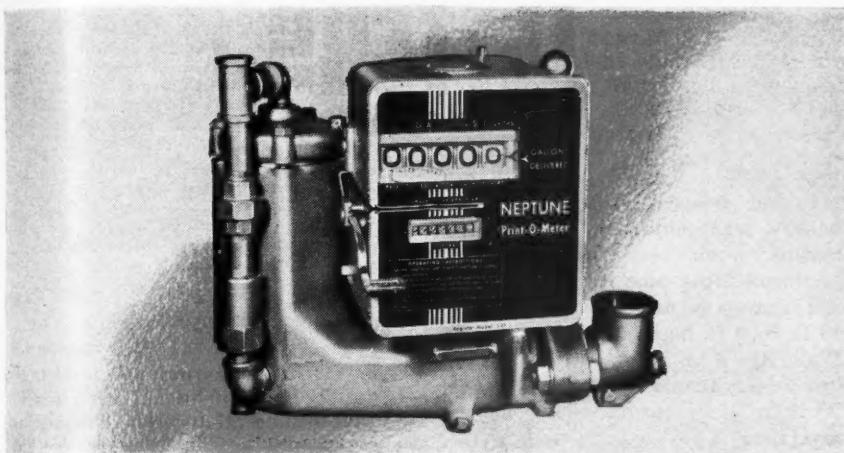
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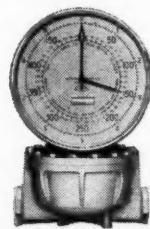
Publishers: G A S, The Natural Gas Magazine; HANDBOOK BUTANE-PROPANE GASES;  
 WESTERN METALS.



## DETECTOR OF HIDDEN LOSSES . . .

This LP gas measuring device is a proved means of finding and overcoming hidden losses. Such meters, installed on your loading racks and trucks, account for every gallon dispensed. Leaks are detected, over-deliveries are stopped, time and labor are saved.

The Red Seal Compact Meter with Print-O-Meter Register (above) is widely favored for tank trucks. The printed delivery ticket shows before and after gallonage readings—leaves no question about the quantity delivered. Learn all about the sustained accuracy, low upkeep and easy maintenance of all Neptune LP Meters. Write today.



*At left: Type D Meter for loading rack service.*  
Neptune Red Seal LP Gas Meters accurately meter butane or butane-propane mixtures. Patented "change gear shifter" makes calibration easy. Long-life measuring chamber has only ONE moving part. Compact models have strainer and vapor release in the meter casing.

**NEPTUNE RED SEAL METERS**

N-08-44

**NEPTUNE METER COMPANY**  
50 West 50th Street New York 20, N.Y.

Branches: Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Mo., Los Angeles, Louisville, Philadelphia, Portland, Ore., San Francisco, and Long Branch, Ontario.

# LETTERS

Gentlemen:

In the heating of an oven in a bakery, what objection, in your estimation, would there be to using a luminous flame pipe burner?

The oven to be heated is 13 ft. by 13 ft. by 6 ft. high outside dimensions. Walls are 6 in. thick and ceiling is 9 in. thick. Insulation is rock wool. Working temperature about 400° F. maximum.

To obtain a blue flame with pipe or blast burners will require a blower to supply enough air. This type of installation requires considerable materials and numerous controls.

In your estimation what is the objection or objections to luminous flame pipe burners? Will their efficiency be as great as the blue flame burner? Will they contaminate foods being baked in the oven even though the burners can be installed so the flame will not come in contact with any surface?

Assuming the same amount of gas is fed to a blue flame burner as to a luminous flame burner will there be any difference in heat output? Since the luminous burner will get no primary air will it require an amount of secondary air equal to the combined primary and secondary air required for the blue flame burner?

H. E. H.

Michigan

The application of luminous flame burners to the oven you describe would not be practical due to the difficulty in supplying sufficient air to the burner heads to support perfect combustion under all conditions of operation.

Blue flame burners are used because of their flexibility and speed and ease of control.

Regardless of the type of burner, the gas requires the same amount of air, theoretically, for combustion. The usual furnace condition, in order to supply enough oxygen for complete combustion, requires excess air varying from 10% to 30%.—Ed.

Gentlemen:

We refer back to your letter of Aug. 11, 1942, whereby you regretfully informed us of having been forced to discontinue all foreign distribution of your publication because of the war.

To tell you the truth, your publication is of vital importance to us as we, being sole distributors in Egypt of butane gas, have to be regularly acquainted with all the research work that is performed in our branch in your country.

The Bottled Gas Co.  
Cairo, Egypt

The U. S. postoffice has recently lifted restrictions on foreign mail to an extent which permits us to now send you BUTANE-PROPANE News regularly again. We are glad it has served you so well in the past.—Ed.

Gentlemen:

Will you kindly advise me under what section or paragraph of OPA rules propane-butane carburetors have been prohibited from being manufactured?

It appears to me that the use of this fuel would go a long way toward helping out the gasoline shortage.

H.M.P.

Illinois

You ask for the number of the order that limits the sale and production of butane carburetors. These carburetors have never been specifically banned for manufacture but their production has been made impossible except on high priority orders by the

order limiting the use of copper and copper alloys and which is known as M-9-C.

Many vital materials in addition to copper would be needed to make conversions of gasoline engines to use butane, and in addition to that the synthetic rubber and aviation gasoline demands upon butane have been so great that there really is no surplus of butane. Therefore, the government seems to feel that the general transportation situation would not be improved by clearing the way for the manufacture of an unlimited number of butane carburetors.—Ed.

#### Gentlemen:

In your Handbook Butane-Propane Gases on Page 174, 1942 Edition, under the heading "Distribution Systems," you refer to the West Coast Gas Association "Gas Engineer's Handbook."

Will you advise us to whom and where we may write in order to secure the latest edition of this publication?

E. J.

#### Mississippi

The "Gas Engineer's Handbook", prepared by the Pacific Coast Gas Association, is published by the McGraw-Hill Book Co., Inc., in New York.

The original edition was issued in 1934 and there have been reprints of that edition, but I believe no revisions.—Ed.

#### Gentlemen:

Can a "Holland" coal furnace be converted to burn propane or butane as fuel?

G. E. A.

#### California

Such furnaces cannot be converted successfully as regards operating costs, unless available fuel is exceptionally cheap. We suggest you submit your problem in detail to the Ransome Co., Emeryville, Calif., who make industrial burners.—Ed.

#### Gentlemen:

We are operating a municipal butane-air plant with a maximum pressure of 15 lbs. per sq. in. in the mains and a maximum capacity of 2100 cu. ft. per hour. At present, we are deliver-

ing 550 Btu. gas but during cold weather the demand has just about reached the plant capacity and we are now planning to double the plant capacity by doubling the Btu. to 1100. If you have any record of experience in this sort of a change over in a butane-air system we would greatly appreciate any information that you can give us.

R. R.

#### Texas

There is no reason why you cannot operate at 1100 Btu., provided all appliances are changed over to function successfully. We suggest, if you contemplate making a change, that you increase the Btu. content to approximately 1450 to 1500 per cu. ft., as this is the range within which the burning characteristics are approximately the same as for natural gas, and standard natural gas appliances and burners can then be used.

It will also simplify the changeover, as the orifice sizes will be more standardized. Appliance operation should be better with the higher Btu. value than with 550. A check should be made on meter and regulator connections for leakage as the unaccounted-for will be higher with a richer gas in the system.—Ed.

#### Gentlemen:

Could you tell us where we could find a laboratory which would run a test on LP-Gas for us and possibly supply a small container for the gas to be tested? We are unable to find such in this section close by.

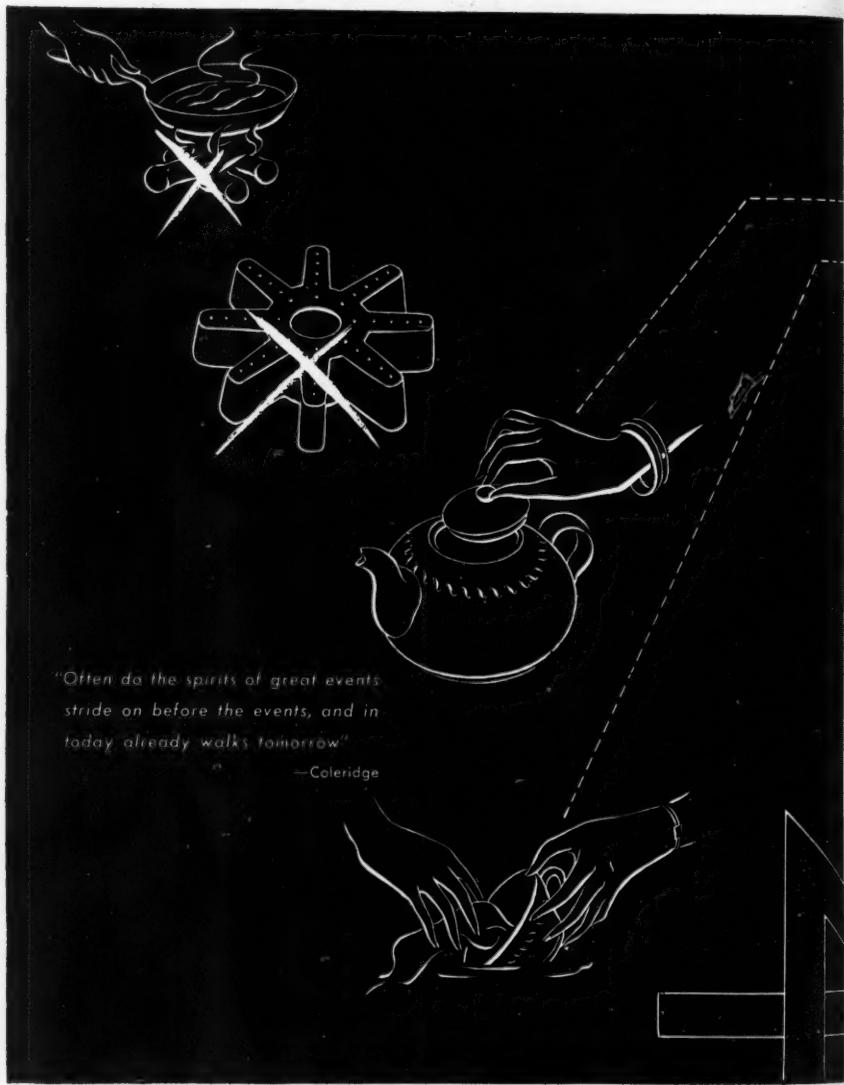
MRS. S.F.B.

#### North Carolina

We understand that the laboratories of the National Board of Fire Underwriters make tests like you desire. Probably your best course would be to consult the firm that supplies you with LP-Gas. Or, there may be other suppliers of fuel in your locality that would make a test for you. Quite often local chemists are qualified and equipped to make tests of LP-Gas.—Ed.

- BUTANE-PROPANE News welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.

# What will the gas range of the



"Often do the spirits of great events  
stride on before the events, and in  
today already walks tomorrow"

—Coleridge

f the future be like...and WHY?

DISCUSSION NO. 1

# Burner heads should be

---easy to remove as a teapot cover

-----easy to clean as a teacup

• Any discussion of the gas range of the future naturally revolves about two factors—what is desirable, and what is practical.

We believe the gas industry agrees that improved burner heads are desirable. And, results of present day research bring the conviction that improvement is practical of achievement.

We foresee a burner head infinitely superior to those in use today. It will be finger-light and removable at the flick of a finger. A simple mechanism will make it just as easy to replace, with no possibility of incorrect assembly. .

It will be made of non-corrosive metal. Most important, in case of a spill-over the parts will be so designed that they can be cleaned in seconds.

This, we believe, will be the standard for burner heads in tomorrow's gas range—because the public will demand it, and research even now is proving it practical.

## HARPER-WYMAN COMPANY

8562 VINCENNES AVENUE  
CHICAGO 20, ILLINOIS



2-burners-in-1



**R. M. CONNER**  
**Guest Editor for March**

# **Our Technical Horizons Must Be Continually Expanded**

By R. M. CONNER

Director, American Gas Association Testing Laboratories,  
Cleveland, Ohio

I SOMETIMES wonder whether gas men and in fact all business men generally appreciate the tremendous effect that new scientific discoveries exert on our whole national economy. They not only greatly influence American policies but are inseparably joined with human progress. Everyone and perhaps most of all the industrialist wants to see good times. It is very doubtful, however, whether sufficient study is devoted to the factors which bring such conditions about.

What I have in mind can probably best be explained by pointing out that during the past 100 years the greatest contributing factors to industrial progress and prosperity in general have been brought about by inventions which in turn have resulted in the creation of new industries. These developments have for the most part been the direct result of extending our scientific horizons to encompass new fields.

Our industry was born as the result of a scientific discovery made largely by the distinguished engineer, William Murdock, the first gas engineer and inventor of the first steam locomotive. It has grown and prospered as a direct result of continuous new developments and its progress is almost directly proportional to the number of them. One example of this nature is the greatly enlarged domestic gas research program now being carried out by the American Gas Association at its Laboratories under supervision of an excellent committee of gas industry executives headed by E. J. Boothby and F. M. Banks. This and other similar activities represent heartening signs.

In all our future planning, not only postwar but otherwise, we must recognize that the general trend of the American people's standard of living will be continuously upward. To the extent that we recognize this fundamental and do everything that we conscientiously can to promote it effectively, we shall prosper. The public is sufficiently observant to understand and recognize the agencies actually responsible for its advancement. Moreover, if our research and development programs are really effective we have nothing to fear from a competitive standpoint.

# **Looking forward to Banner Postwar Years WITH TAPPAN L. P. GAS RANGES...**

ANDREWS OIL COMPANY  
Green Bay, Wis.

January 5, 1944

Mr. C. V. McConnell  
Sales Manager  
Tappan Stove Company  
Mansfield, Ohio

Dear Sir:

Like the Tappan Stove Company, our first objective is to win the war. We will continue to cooperate, in every degree, to gain that objective. However, we find a few spare moments to do some postwar planning.

Note your good Company is continuing to assist L. P. Gas Dealers with National Magazine advertising to maintain your former high acceptance. This advertising, as in the past, will make it easier for L. P. Gas Dealers to sell Tappan Stoves.

As carload buyers we are eager to resume our friendly business relations, and look forward to banner postwar years.

Yours respectfully,

ANDREWS OIL COMPANY

By *Dale E. Andrews*

## **WE'RE WORKING AHEAD TO BACK YOU UP**

Even though Tappan Ranges were "casualties of war" long ago, a forceful, continuing program of National Advertising is building profitable postwar sales—for you. The Tappan Stove Company, Mansfield, Ohio.

You'll find Tappan Ads in  
**LIFE • McCALL'S  
BETTER HOMES AND GARDENS  
LADIES' HOME JOURNAL  
WOMAN'S HOME COMPANION  
SUCCESSFUL FARMING**

**TAPPAN**  
*Gas Ranges*



"Certified  
Performance"

For 63 years makers of quality ranges—100% in war work now

BUTANE-PROPANE News

# MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

## First Call

There is an unwritten rule in the gas utility industry that is observed without exception under every conceivable circumstance and in every situation, and that rule is that the right of the connected domestic consumer to have gas, and the obligation of the company to deliver it to him, takes precedence over any other claims or contracts, whether they be written, implied or just understood.

We believe that all butane and propane dealers or distributors, and any other factors in the business having contact with the ultimate consumer of LP-Gas, should bear this principle in mind at all times and adhere to it with scrupulous fidelity. The Office of War Utilities—WPB's controlling agency over manufactured and natural gas—recognizes this primary responsibility of the gas industry, and every order and directive has paid respect to it. Even the United States supreme court, in various decisions over the years, has expressed its agreement with the principle that the rights of the homes of the na-

tion to a continuous supply of gas that they are using are ahead of any other claims on the utilities to deliver service.

If gas shortages should occur, it is well to bear in mind that an irate colonel storming over the telephone for gas to keep his army kitchens in operation does not have the standing legally or ethically, that equals that of the housewife who wants to heat the baby's bottle or cook her lord and master an egg. And a vital war industry, if it comes to a showdown, can not enforce the demand that it be served, if that service must be at the expense of the domestic consumers of butane or propane.

Dealers should, as a matter of patriotic duty, urge their customers to conserve gas—to use it wisely—as a contribution to the war effort. But whether the domestic user burns his fuel conservatively or wastes it prodigally, the principle remains the same, and the manner of consuming as well as the amount consumed is in the final analysis a matter for that consumer to

settle with his own individual conscience.

Drilling rigs in the Texas oil field, heat treating plants in the Middle West, army camps in Alabama—they are all in the same boat, as far as the domestic consumer is concerned. He comes in ahead of all of them.

### Pipe Dreams

We do not share the austere and pessimistic outlook of some of the orators of the gas industry who view with alarm verging on panic the terrific competition that electricity is getting ready to put up for the postwar cooking and water heating load. Not that we think the postwar expansion of the LP-Gas industry is going to be a pushover with cheering customers lined up in long cues to exchange fistfuls of war bonds for butane or propane service and equipment. The competition will always be present, and it will have to be met with tactics that are just as aggressive and a service that is, if possible, even more superior than that which existed before we were aced into the global conflict.

But as we thoughtfully peruse the gaudy predictions of the advertising writers, and as we dutifully listen to the glib prophecies of the radio spell-binders, it occurs to us that there is something phoney about the whole

promotion that will react not to the benefit of, but rather in detriment to, the industry that is putting it out.

Pages have been expended on glowing descriptions of the wonders that are to spring from the magic hat of electronics, everything is going to be perfect, the new models will amaze you, they will dumbfound and dazzle you, they will make life a symphony of luxury, contentment and ease. But we can't tell you what these amazing new devices are right now because it is a military secret. And so, far into the night until the same sepulchral voice that says Electronics Rrrr Ceeee Aeeee winds up with Bee Ooooo, which is just radio language for It Smells.

So the little twirps believe everything that they hear say "oh, goody" and sit right back and wait for Santa to come in with something big and wonderful, even though they don't just know what it is going to be, and they won't be interested in anything less than miracles from the electrical industry. And a good many other customers who don't put much stock in Santa Claus are just going to say "oh, yea?" and they are going to keep right on waiting and hoping that the time will come when once more they get a dollar's worth of value for a dollar spent, which they also know is more than they can do right now. This is the class that buys

gas equipment; it is the class that would buy it right now if they could get it legitimately; maybe it buys a little on the side without consulting the law books on the subject. We don't know, but we hope not.

The automobile industry woke up a few months ago when some of its more level-headed spokesmen started to warn the public that the cars of tomorrow would look and perform just about like the cars of today. They were commencing to get a little worried about the general public waiting for the teardrop model and the amphibious model and the little number with an old fashion ice cream parlor fan on the roof that could jump up and down as easily as it could go forward on the highway. They foresaw that if everyone was waiting for some new kind of transportataion freak they would have a hard time getting them to lay a little on the line for a conveyance that would just get them where they wanted to go. Of course, the way it looks now, by the time the public is able to buy automobiles again they will be so almighty glad to set their aching dogs down in any kind of a hack that rolls they will have forgotten the promised plastic bugs with the motor cleverly concealed in the differential.

The LP-Gas association is now starting a modest little publicity campaign to keep the fuel and

the service it renders in the public mind until the present conflict ends. We have not had the opportunity of looking at any of the material that is in preparation, nor of talking it over with the company that has been entrusted with the job. Our only hope and prayer is that the campaign will be pitched to a realistic level, and that it will create a demand for attainable things and not a wistful and futile desire for impossible miracles.

It is a good thing for us to remember that people buy any kind of gas for the service that they get out of it. They buy it to cook their meals, to heat their water, and sometimes to refrigerate their food and warm their houses. When you have told that you have told about 95% of the story, and if you have appliances to sell that do those simple things efficiently and economically, you have appliances that satisfy about 95% of the demands that are made of them.

There is no magic about that, and there is no miracle, but there is comfort and convenience that millions of home owners will take advantage of as soon as they get the chance. With that fundamental service to offer, we submit the LP-Gas industry doesn't have to worry too much about the military secrets of the electronics.



## A FINE OLD NAME IN GAS RANGES

*Graces this New  
War Model*

● Some of the skilled craftsmen at Roper are turning once again to the kind of work they had done for years before the war—manufacturing Roper gas ranges.

These gas ranges are available for you to sell to those who have no cooking equipment or whose cooking equipment is beyond repair. Roper is pleased to lend its efforts to this governmental desire.

Complete with many modern features, the new Roper gas range, now coming down the assembly lines, provides an oven, broiler and top-of-range cooking service. The range can be purchased through the surrender of Stove Pur-

chase Certificates in accordance with provisions of the Stove Rationing Program.

Remember—this gas range bears the name Roper.

GEO. D. ROPER CORPORATION,  
Rockford, Illinois, manufacturer of  
ROPER, "America's Finest Gas Range,"  
for all gases, including LP (Liquefied  
Petroleum) Gas.

**ROPER**  
GAS RANGES

**SELL WAR BONDS NOW ★ THE ROPER GAS RANGE LATER**

# Canadian Isobutane Is Base For High Octane Engine Fuel

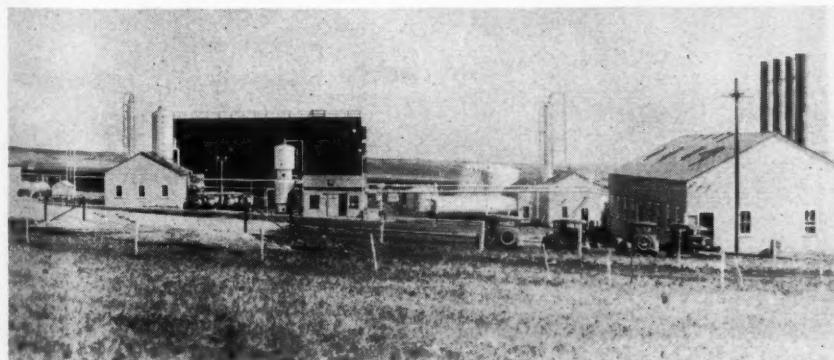
CANADA is producing war-vital isobutane in large volume from the natural gas which originates from the Turner Valley field not far from Calgary in the province of Alberta, and in addition, by the time this story is in print, synthetic production from normal butane should be underway in a newly-constructed plant on the outskirts of Montreal, largest city in the Dominion.

This two-way production of the blending agent so necessary for high quality aviation gasoline has meant co-ordination of the efforts of a number of the nation's oil companies, plus a Canadian government organization known as Allied War Supplies Corp., which has the say in the allocation of all aviation alkylate produced in the

By R. W. CLARKE  
Toronto, Ontario

Dominion, and it has involved total expenditures for various plants of around \$5,000,000.

In Alberta, the companies involved in the production of aviation alkylate, and of course the production of isobutane, are Royalite (owned by Imperial), British-American Oil, Imperial and Gas & Oil Products. While B-A Oil is a large contributor, the major share of the undertaking falls on Royalite and its mother company. Gas & Oil Products is involved only to a minor degree in pooling arrangements, since this company has but a slight amount of isobutane to chip in after its own normal needs have been met.



Absorption plant of British-American Oil company, 50 miles from Calgary, Alberta, Canada.

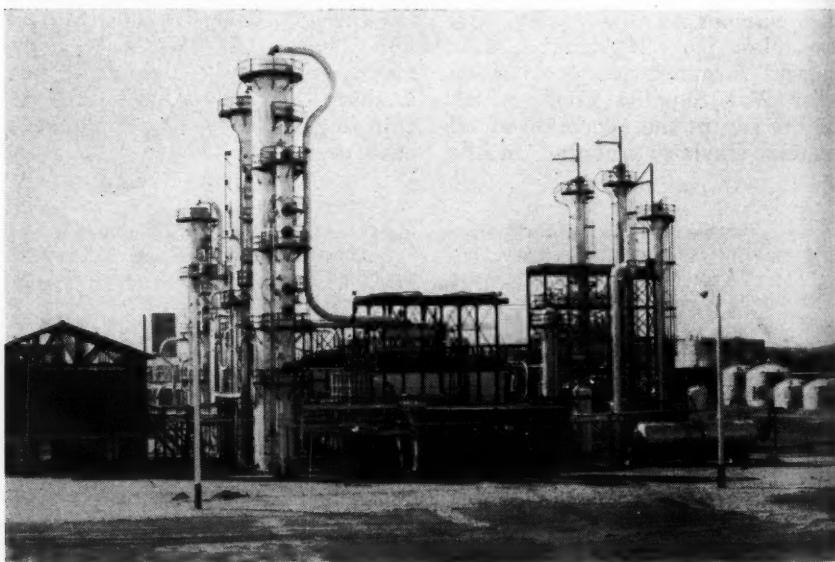
Shell Oil, McColl-Frontenac and B-A Oil are participating in the operation of the project which has grown in Montreal's east end. Original plans called for this synthetic plant to go into production in mid-February, but early in the new year it appeared a slightly later date was logical since progress was a bit behind schedule. That Imperial may join in, also, on the synthetic venture, is a possibility, although no definite move has yet been made by the company.

When American airmen go soaring out over the north Pacific from airfields in the Aleutians, possibly in search of Japanese submarines, or when they patrol the desolate Alaska shoreline, it's a safe bet that at least some of the planes

they fly are using fuel allocated the United States Military services by Allied War Supplies Corp. and produced by refineries at Calgary, Alberta.

Two refineries are operated at Calgary—one by B-A, the other by Imperial. A communal alkylation plant has been established at the Imperial refinery, and this is fed by four absorption plants located in Turner Valley. Cost of linking up these absorption plants, which supply butanes, isopentane, normal pentane and heavier, was borne by the companies involved and the government.

All four plants, Royalite's two and the singles of B-A and G&OP, are only a comparatively short distance southwest of the Calgary re-



The Calgary refinery of British-American Oil where products from the absorption plants are processed as feed to the alkylation plant.

fineries. B-A's absorption plant is farthest away — and it's only 50 miles off. These absorption plants all were constructed before the war with the B-A plant, finished in 1936, the last to be erected. The Valley Pipe Line Co. handled the job of linking the various absorption plants with the Calgary refineries.

In recent months, Royalite has been working on consolidation of its two plants, a move aimed at putting through a much larger gas volume than has been possible through its separate plants. In addition, construction also has been underway on a booster station to tie up wells which have been flaring their gas, with the consolidated plant.

The entire consolidation program is expected to cost in the neighborhood of \$416,000. One of the advantages which will result, however, is that it will not be necessary to build a synthetic plant in Calgary to produce isobutane, a step which had been considered by Allied War Supplies Corp. and which would have cost at least \$150,000.

#### **Isobutane Is Stabilized**

Extracted from the gas which flows from producing oil wells in Turner Valley by the common oil extraction process, isobutane is stabilized with normal butane and pentanes to produce a 45 lb. Reid vapor pressure field product which, in turn, is pumped to the alkylation feed preparation plant in Calgary. There the isobutane is fractionated from the field product and reacted with refinery butylenes to

produce aviation alkylate. All alkylate thus produced is the property of Allied War Supplies Corp., while normal butanes and pentanes plus are prorated back to the participating oil refineries for blending in motor gasolines.

In Montreal, an isomerization plant and alkylation plant are located on the Shell property, while B-A and McColl-Frontenac have feed preparation plants in the immediate vicinity.

#### **Industry Committee Rules Grouped Under One Order**

A restatement of policy outlining the rules and orders applicable to all group meetings of industry representatives and Industry Advisory Committees with Officials of the War Production Board, codified into a single order, GAO 2-141, was announced Jan. 31 by WPB. There are no changes in policy of procedure.

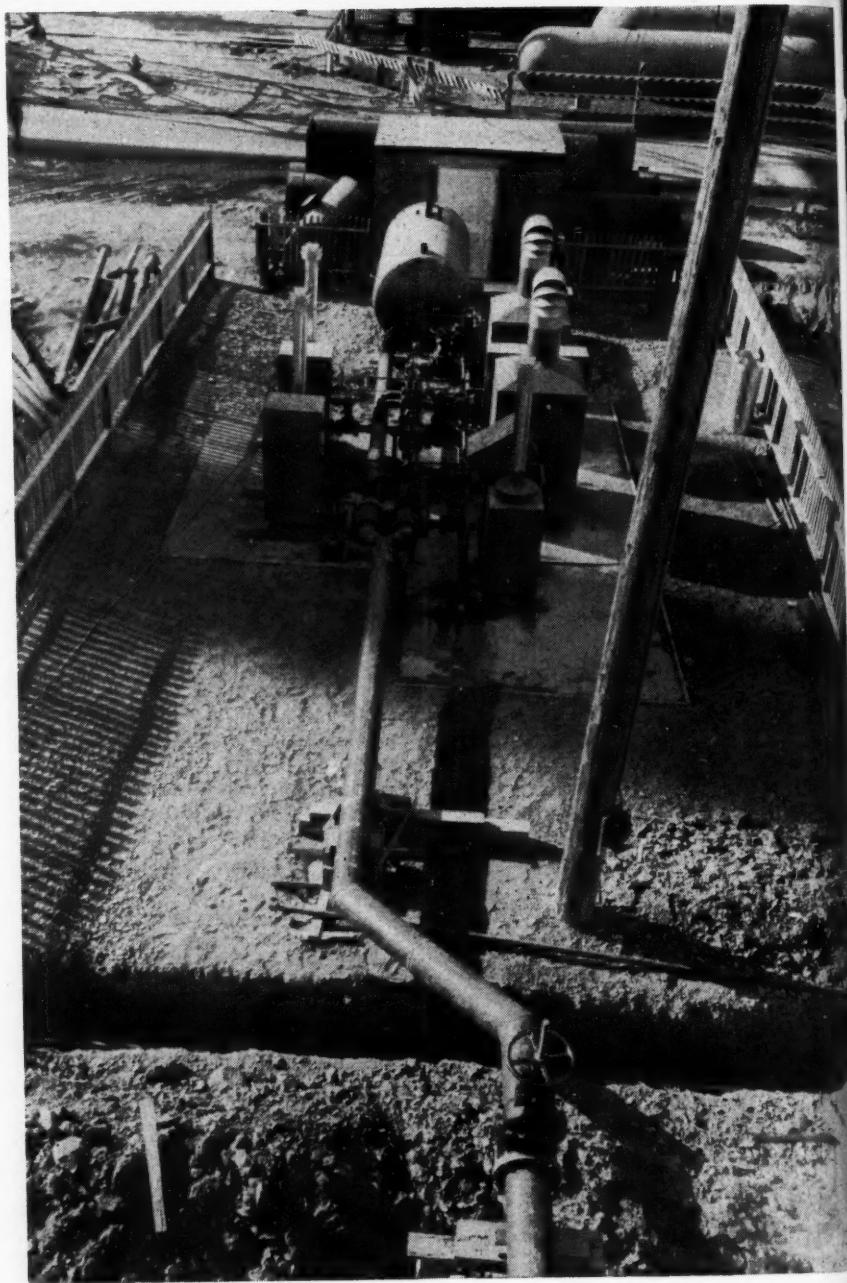
The new order reaffirms a policy of using committees as advisory groups on war production which has been in practice since the early days of the emergency.

Under the new order, signed by Donald M. Nelson, WPB Chairman, no limitation or conservation order or amendment may be issued without prior consultation with an industry advisory committee if the change will result in a substantial alteration in the operations of that industry.

#### **No New Brass or Copper Permitted in Gas Hook-Ups**

WPB has prohibited the manufacture of new brass or copper tubing, pipe or fittings for installation in gas supply and gas distribution systems.

These actions, effective Jan. 22, were taken by amending Conservation Order M-9-c.



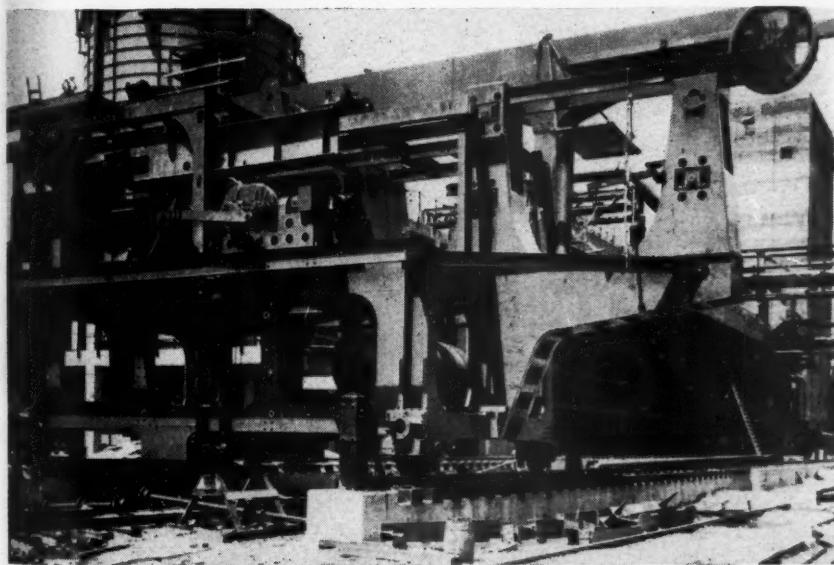
# Propane Pre-Heats Coke Ovens For Utah's Great Steel Plant

LIQUEFIED petroleum gas came to the aid of another of the west's war-born, "heavy" industries when the Geneva Steel Works, a division of Columbia Steel, applied it to pre-heat their coke ovens as a prelude to their operations at Geneva, Utah.

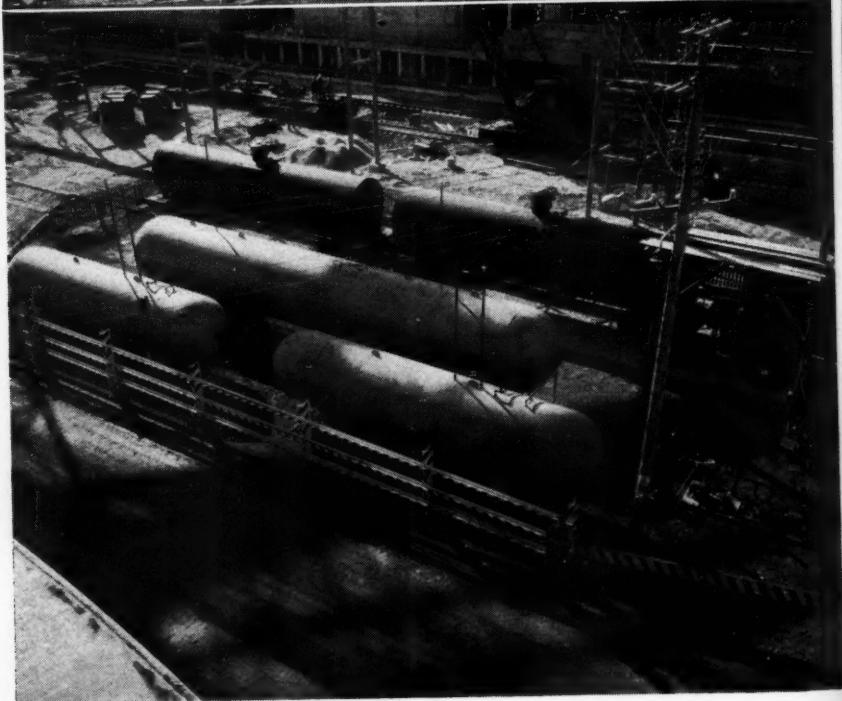
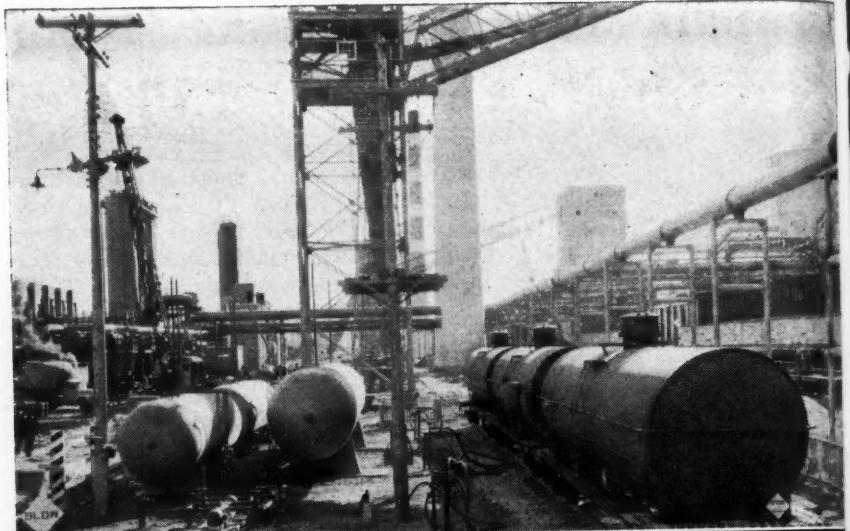
The Geneva plant is now in production, turning out plate steel

from iron ore and coal mined nearby. Utilizing "Gasair" machines, manufactured by the Gasair Corp., of San Francisco, engineers from the American Liquid Gas Corp., Los Angeles, set up a gas-making system on the Geneva property capable of discharging 180,000 cu. ft. of 875 Btu. propane-air mixture per hour. LP-Gas was used to pre-heat the coke ovens from Nov. 5 until the first charge of coke could be drawn on Dec. 13. Geneva then continued operations on coke-oven gas. The Algas-Gasair installation was kept on the property for 18

OPPOSITE PAGE: The gas-air machines, miscellaneous valves, headers and piping arrangement which supplied preliminary fuel for the steel plant coke ovens near Provo, Utah. The line in the foreground runs into a 36-in. main leading directly to the coke ovens. The gas-air machines' capacity totaled 180,000 cu. ft. per hr.



View of Geneva coke ovens which were pre-heated with propane.



days to assume the fuel load in case of any failure.

Equipment, as set up by Bert Fast, Harry Faull and Tom Clark, of the American Liquid Gas Corp., included storage tanks with a 33,000 net gallon capacity; two 50,000 cu. ft. Gasair machines; three 10,000 cu. ft. Gasairs; and five 10,000 cu. ft. auxiliary tubes. Propane, supplied by Sinclair Prairie Oil Co., was transported by tank car, and facilities were set up to unload three tank cars simultaneously.

This operation marked the second time that liquefied petroleum gas was used here in the West to pre-heat coke ovens. The Kaiser steel plant at Fontana was the first to prove the practicability of the operation.

Geneva Steel Co.'s first open hearth began production Feb. 3, one month after the first of three blast furnaces was blown in. The 225-ton basic furnace is one of nine being built.

First rolling mill operation on plates is now scheduled for about April 1.

The Geneva plant is now employing 1,500 workers direct and 750 others are in supporting mines and quarries. The site of the plant embraces more than 1600 acres and the total investment will amount to \$180,000,000.

In addition to blast furnace and open hearth operation, Geneva,

which is operating the plant on a nonprofit basis for Defense Plant Corp., has had in operation one of the four batteries of 63 coke ovens, a sintering plant, iron casting facilities and its 50,000 kw. electric power generating plant, together with pumping facilities and those for handling ore, coke and coal. Another coke battery starts production later this month.

Lately about 75 carloads of ore, coal, dolomite and other raw materials a day have been delivered at the plant and, as additional facilities are completed, this is expected to be shovved up to an ultimate 500 cars a day.

#### **Monthly Reports Required Of Furnace Manufacturers**

The monthly report of production, shipments, unfilled orders and estimated future production required of furnace manufacturers under the recently amended furnace order, L-22, should be filed by all furnace manufacturers whether they produce regularly or irregularly.

For example, if a manufacturer produces furnaces in January but does not produce subsequently, a report for January should be sent in and also one for February stating that no furnaces were produced during that month, and that production has been discontinued. If a manufacturer produces furnaces intermittently he is requested to report each month even though some months show no production.

Any furnace manufacturer who has not yet received a supply of Form WPB-3316, on which the monthly report is to be made, should request them from the Plumbing and Heating Division, WPB, Washington 25, D. C.

**OPPOSITE PAGE:** Two views of unloading and storage facilities. The propane from three tank cars is being transferred by two Smith positive displacement pumps into the three storage tanks, two of which hold 7600 gals., each, and the third 18,000.

# Industry Committee Discusses Appliances

WPB announced on Feb. 9 that simplified models of gas cooking stoves which are now on the market will be the only ones available for some time, although consideration is being given by WPB to the removal of restrictions on stove production. Even if such relaxation is made, the time lag between allocation of materials and actual production would probably run about six months.

**D**ISCUSSION of a proposed amendment to the domestic cooking appliance and domestic heating stove order, L-23-c, was the main concern of the Industry Advisory committee at its January meeting with government officials in Washington.

At the opening of the meeting Harry J. Holbrook, Government Presiding Officer reminded committee members of the uncertainty of the future status of raw materials. He pointed out that availability will depend upon developments in the prosecution of the war, and cautioned that care must be exercised in the relaxation of WPB orders since industry must be held available to fulfill emergency war demands which may arise.

The principal change under the proposed amendment to Order L-23-c would be permission to resume production of standard model gas ranges. Only victory models with 3 or 4 top burners are permitted under the present order. The proposed change would permit production of standard gas ranges 35 in. to 40 in. plus a 3 and 4 burner cooker. Although production of standard model gas ranges is recommended under the proposed order, no increase in unit production is proposed.

The proposed amendment to the order would remove restrictions on

the production of accessories which would permit production of thermostatic or oven controls. It was stressed that these controls conserve a great deal of fuel as well as a great deal of food.

Production of domestic cooking appliances and heating stoves under the proposed amendment would be on a quota basis, the quota being based on the number of units produced by each manufacturer during the base year, July 1, 1940 to June 30, 1941.

In discussing the supply of component parts members indicated that the supply of valves is for the most part adequate.

## WPB Executive Says No Refrigerators Yet

The date on which such important war industries as those which formerly produced domestic mechanical refrigerators and similar heavy consumer goods may resume civilian production cannot be determined now, Charles E. Wilson, executive vice chairman of WPB, told members of the Domestic Mechanical Refrigerator Industry Advisory Committee Jan. 22.

"Our army and navy face what is probably the most perilous undertaking in military history," he emphasized. "Industry must be kept flexible, so that it will be able to meet the requirements for increased war production that may result from impending military operations. Until the outcome of what lies ahead becomes clear—and there is no way of telling when that will be—production of domestic mechanical refrigerators cannot be resumed."

# 100,000 Tons of Butadiene per Year Is Texas Plant Capacity

ENOUGH butadiene to produce one-seventh of the entire wartime requirement of synthetic rubber soon will be turned out in a single plant operated without profit by the oil industry, Herbert Henderson, chairman of the board of the Neches Butane Products Co., has announced. The first of two units at Port Neches, Texas, as scheduled, was placed in operation in mid-December and the second will be ready shortly thereafter, he said.

Through a radically new process, developed by oil industry engineers, the amount of butadiene to be manufactured from a barrel of oil will be more than doubled and the refinery gases remaining after the butadiene has been manufactured can be used in production of high octane gasoline and other products, he said. This process, proved in a laboratory model, has been turned over to the Government and has already been found practicable in smaller plants.

## Is World's Largest

The Port Neches plant, which will be the world's largest producer of butadiene, principal ingredient of synthetic rubber, is being financed by the Defense Plant Corp. It will be operated by the Neches Butane Products Co., organized by five oil companies with refineries in the region to bring to the synthetic rubber program the combined experience and patents of the entire petroleum industry.

None of the companies, Mr. Henderson pointed out, will receive any profit or management fee of any kind.

In fact, he added, they are contributing the services of management and technical personnel assigned to the project and are even paying their expenses.

Refinery gases, produced in the manufacture of petroleum products, will be piped to the butadiene plant from nearby refineries of the five participating companies—Atlantic Refining Co., Gulf Oil Corp., Pure Oil Co., Socony-Vacuum Oil Co., and The Texas Co. After the production of the butadiene, the remaining gases will be returned to the refineries for the production of high octane aviation gasoline and other products. The gases, or raw stock, will be supplied to the Government on a cost-of-production basis.

The plant will have a capacity of 100,000 tons of butadiene a year, sufficient to produce more than 110,000 tons of synthetic rubber for the Government's Rubber Reserve Co. The nation's synthetic rubber goal is 800,000 tons.

The entire rubber project at Port Neches, which consists of the butadiene plant and two copolymerization units in which the synthetic rubber is made, is Government owned, although it was designed, built and will be operated by private industry.

## Plumer E. Pope Will Manage Suburban Gas at Hyannis, Mass.

Plumer E. Pope has recently been made manager of the Suburban Gas Co., of Hyannis, Mass., according to Albert E. Dauphinee, proprietor.

For many years, Mr. Pope was associated with Fuelite Natural Gas Corp. at Lexington, Mass.

# Rate Hearings Continue Before ICC

CURRENT developments in Interstate Commerce Commission hearings on LP-Gas freight rates centered on a meeting held in Louisville, Ky., on Feb. 9-11, inclusive, the date having been advanced from Jan. 12.

The industry committee, headed by K. H. Koach, general manager of Green's Fuel, Inc., Sarasota, Fla., and attorneys were present to defend their side, opposed by the legal staff of concerned railroads. Testimony for both sides was presented for three days.

The ICC has given LP-Gas industry men and the railroads until March



K. H. KOACH

20 to file their briefs. It is possible that in April there will be oral arguments made before the full Commission in Washington, and by June a final decision in the case will be rendered.

In the meantime, the industry can remember with satisfaction that there has already been finally won the weight basis of 4.7 lbs. per gal. The current appeal of the railroads is to obtain a rate-per-pound increase to offset the weight reduction.

In addition to Mr. Koach, the industry committee is composed of the following: Selwyn Turner, Mobile, Ala.; C. W. Guy, Baton Rouge, La.; R. C. Weis, Wheatley, Ark.; Arthur K. Lee, Chicago, Ill., and Norman Paris, Sandersville, Ga.

In addition to these, A. F. Winn and A. H. Menuet were present at the hearing. J. V. Norman is the industry attorney and Chas. E. Bell testified as a traffic expert.

## Frank De Larzelere Appointed McNamar Distributor

Southern Gas & Equipment Co., Rockford and Frisco R. R., Tulsa, Okla., has been appointed distributor of McNamar Boiler and Tank Co. Frank DeLarzelere, president of Southern Gas & Equipment Co., has resigned as district manager of the War Production Board at Fort Smith, Ark., to become actively identified again with the company.

Due to the success Mr. DeLarzelere had in helping bring new industries to the state of Arkansas, he was named a member of the Arkansas Economic Council for Post War Planning.

Southern Gas & Equipment plans to stock a full line of equipment for the

LP-Gas industry, including regulators, meters, hose, cylinders, etc. Henri H. Jennings, vice president of the company, will have charge of the office in Tulsa.

## How Compressed Gas Sellers Can Make Demurrage Charge

OPA has provided sellers of compressed gas in cylinders with a means of charging demurrage for each additional day a cylinder is retained by buyers beyond a normal period necessary to empty a cylinder.

Sellers owning the cylinders who wish to institute a demurrage charge must supply the OPA regional office with the names and addresses of the nearest three competitive sellers and where available to applicant, the charges imposed by those sellers.

# War Manpower Turnover Calls for Safety Vigilance

BY L. W. HUTCHINS

Director, Safety Research Institute, Inc., New York City

THE accelerated progress which has marked the life of the petroleum industry has been made possible through pooling the experience, study and resourcefulness of experts in many different fields. Among these, the fire protection engineer has played one of the essential roles. The science of fire protection has advanced swiftly enough to anticipate and control innumerable fire hazards lurking in flammable vapors from crude petroleum and many of their products.

Fires involving flammable vapors from various petroleum products that are used in homes for cleaning purposes, that get into the hands of children or irresponsible adults, or are stored or handled in other unapproved ways, take a frightful toll of life and property. But in petroleum industries, considering the billions of gallons of material handled, there are comparatively few fires, and their occurrence has been decreasing for a period of years.



L. W. HUTCHINS

This is largely due to expert engineering and continuous supervision.

War conditions, however, foster situations that seriously menace fire safety. Manpower shortages, and the installation of hundreds of new liquefied petroleum gas plants in war industries for the main source of fuel, as well as for standby plants, have necessitated employment of inexperienced help. Equipment shortages in the midst of stepped-up production schedules encourage infractions of rules, unauthorized adoption of short-cut or make-shift practices, and other violations that are synonymous with fire hazards.

Fire defense in any field means first, that possible fire causes must be recognized and prevented, and, second, that if fire does break out everything possible must be done to confine it within its original area.

Liquefied petroleum gases are singular fire hazards in that the vapors they give off at ordinary temperatures are heavier than air and often difficult to detect when permitted to escape accidentally, so it is vital to prevent all sparks or flames in areas where gas may collect if they do escape.

Fire safety is helped, as well as

threatened, by the peculiar characteristics of these products. Of particular value to the fire protection engineer is the knowledge that there is a minimum concentration of each type of vapor, and of air, necessary for the propagation of flame. Flammable limits for four common vapors, given in terms of percentage by volume with air, are shown in Table 1.

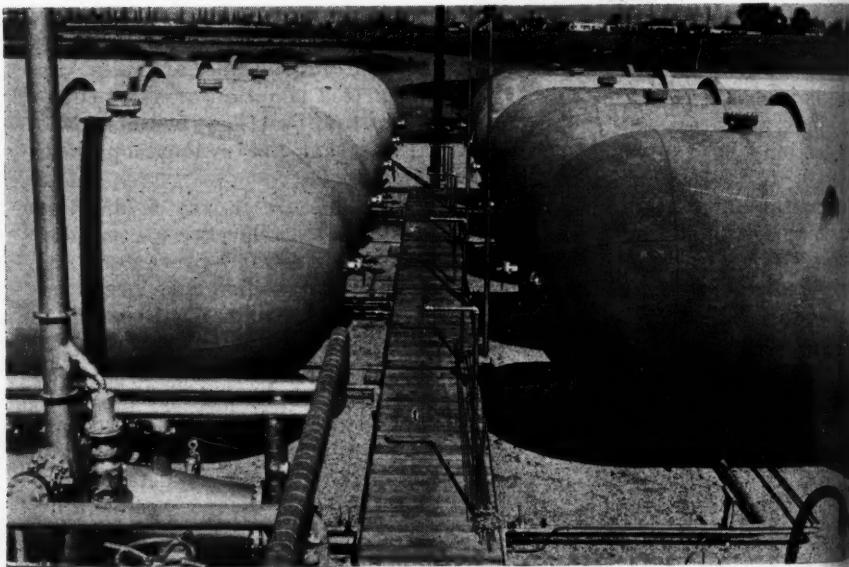
TABLE I. INFLAMMABILITY LIMITS

Flammable vapor	Upper limit of flammability	Lower limit of flammability	Range
Gasoline	1.4	6.0	4.6
Butane	1.9	8.4	6.5
Isobutane	1.9	8.4	7.1
Propane	2.4	9.5	7.1
Propylene	2.0	11.1	9.1

In the case of butane vapor, this means that if less than 1.9% is

mixed with air by volume, insufficient fuel is provided to support combustion, while if more than 8.4% is mixed with air, the mixture is not explosive. Interiors of storage tanks, piping, and other equipment confining liquefied petroleum gases can be, and usually are, kept safe by maintaining over-rich vapor concentrations within them.

Standard approved equipment for handling volatile petroleum products is constructed so as to prevent inadvertent escape of flammable vapors, but, on the assumption that they may be present in the surrounding atmosphere, further safety precautions must be taken. Sources of heat for starting accidental fires must be guarded care-



Safety precautions have been taken here by installing water spray or fog nozzles in the aisle between LP-Gas tanks.

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# CLOW Gasteam RADIATORS

## Combine

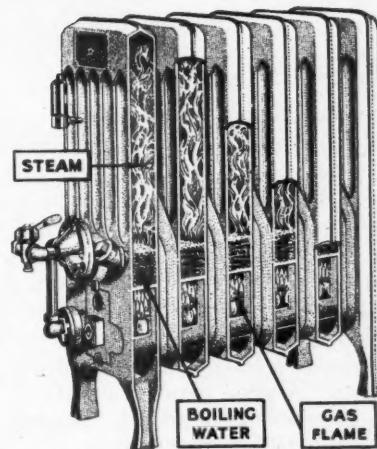
THE SUPERIORITY OF STEAM  
RADIATOR HEATING WITH  
THE FLEXIBILITY OF ROOM  
HEATERS.

1878



1944

**The Radiator That Makes Its  
Own Steam Heat With Gas**



### ORDERS WE CAN FILL NOW

**1. Orders accompanied by Ration Certificates:** Local ration boards have the authority to issue ration certificates for CLOW Gasteam Radiators (classed as gas-heating stoves in Ration Order 9-A) that are to replace worn-out or otherwise unusable gas heaters. Under certain conditions the board can also authorize installations in existing buildings. See your local ration board.

**2. Orders carrying Priority Ratings issued in connection with approved new construction:** CLOW Gasteam Radiators can be sold if a priority rating has been issued for them as a part of new construction authorized under WPB Limitation Order L-41.

WRITE FOR FREE DESCRIPTIVE FOLDER

JAMES B. CLOW & SONS

201-299 N. TALMAN AVENUE, CHICAGO, ILLINOIS

fully in areas where invisible fuel might be mingled with the air. Lightning, static electricity, stray currents, spontaneous ignition, welding, rays from the sun, burning materials, illuminating systems, matches, cigarettes, etc., are common sources of ignition that every fire protection engineer must take into consideration.

#### **Best Safety Precautions**

Safety precautions which have effectively taken care of discharges from primary and secondary lightning flashes, static electricity, and stray currents, include thorough bonding together of all metallic parts, adequate grounding, the elimination of explosive vapor mixtures, and properly placed flame-arresting screens. A good general rule is to keep everything electrically bonded and grounded all of the time.

Welding is a fire hazard under any uncontrolled conditions. It should never be undertaken on, or in the vicinity of, liquefied petroleum gas equipment without a written "Hot Work" permit issued by a competent supervisor.

**The urgency for careful training, insistence on obedience to instructions, intelligent and unremitting inspection and maintenance, and "good housekeeping" cannot be overemphasized. The causes of industrial fires involving flammable vapors are predominantly attributable to "improper maintenance" or "human element" failures.**

Good housekeeping embraces maintenance of the entire plant. Leaky valves, plugged sewers, de-

fective pump glands, ineffective exhaust fans, spills and waste piles are inexcusable potential fire causes. Good housekeeping is a direct responsibility of the manager, and his success in establishing habits of carefulness is reflected in the neatness, cleanliness and orderliness achieved. The National Fire Protection Association suggests that the manager should make regular inspections personally. Men in close daily contact with equipment often overlook points that are obvious to one not in such intimate contact with the daily routine. An illustration is afforded by flame-arresters installed over vents, then allowed to become clogged with scale, paint, wasp nests, snow or ice. Negligence, whether sponsored by carelessness, ignorance, or sabotage, can thwart the purpose of mechanical safeguards.

The art of fire control and extinguishment is called upon when accidental ignition involves any type of fuel.

#### **Plant Protection Requirements**

In large plants, built-in fire protection systems, such as high-pressure water, steam-smothering lines, foam, carbon dioxide, or other approved extinguishing agents for the control of large fires are a standard part of approved installations. But they must be installed carefully, maintained and manned properly, and supplied with plenty of extinguishing agent. It should be noted that foam systems have failed simply because of an insufficient quantity of extinguishing agent.

Few people realize how much the



## SERVING FAITHFULLY

IN EVERY CLIME AND CLIMATE



Wherever you may go today, either in the service or out, you are likely to find a Tokheim pump quietly performing the work assigned to it. For in hundreds of camps and military centers throughout the world, as in towns and villages from Alaska to Arabia, Tokheim pumps are serving their masters faithfully. The conditions of service matter little. For

these pumps have always been built to operate with unvarying efficiency in scorching heat or sub-zero cold, and the strenuous demands of global war have only accented this well-known Tokheim characteristic.

When you need new pumps, see your Tokheim representative, or write the factory. These famous pumps may still be purchased under government regulations.

GENERAL PRODUCTS DIVISION  
Tokheim Oil Tank & Pump Co., Fort Wayne, Ind.



Where large storage tanks are installed in bulk, central and standby plants, installations are made to guard against possible fire. Here spray nozzles are operating at city water pressure of 60 lbs. at the nozzle. Sprays may also be operated at 150 lbs. for greater coverage.



development of first-aid fire fighting equipment has contributed to modern industry.

Prompt and intelligent use of hand fire extinguishers at the start of a fire may easily be more effective than the work of a whole fire department a few minutes later. But organization and training of first-aid fire fighting personnel is equally as important as the installation and maintenance of adequate equipment. Employees must be taught where to find the right type of extinguisher, how to operate it, how to give an alarm, and how to perform a number of other protective duties automatically when emergency strikes.

Standard tankers, barges, tank cars, and tank trucks for transporting liquefied petroleum gases are equipped with approved fire extinguishers. There is no knowing

how many millions of dollars worth of property, or how many thousands of lives, have been saved by hand fire extinguishers installed on mobile equipment of this type. They have stopped many incipient fires so quickly that a refilling of the extinguisher represented the total cost reported. The tremendous loss that did *not* occur, because a dependable fire extinguisher—and someone who knew how to operate it—were on duty when fire broke out, is seldom estimated. Neither is that of the explosion that did *not* occur because an adjacent fire was quenched before it generated a dangerous degree of heat.

Prevention of fires, and prompt extinguishment of fires that do spring up, are of highest importance to all business concerns, to national progress in general, and to the war effort in particular.

**BUTLER**  **BUILT**  
*Liquefied Gas  
Systems*

*Here's the sign your customers  
will be looking for...Postwar!*

No dealer wants to be caught postwar with his signs down. Nor is it any better to be caught with the wrong sign up.

So before you tie up on Liquefied Petroleum Gas Equipment, get full details on Butler's entirely new system.

This information is being compiled and will be ready for

you in ample time before conditions of war will permit the mass production we have planned.

In the meantime, Butler advertising in farm papers will continue to remind your customers that Butler is the L. P. G. System to look for when we can again supply the market.



**BUTLER MANUFACTURING COMPANY**

1219 EASTERN AVE., KANSAS CITY 3, MO.

**BUTLER**  **BUILT**  
**LIQUEFIED PETROLEUM GAS**

HOME SYSTEMS, TRUCK AND TRAILER TRANSPORT TANKS AND BULK STORAGE TANKS

# THE BOTTLED GAS MANUAL

## Chapter 23

## Space Heating

### Part 3

- Parts 1 and 2 of Chapter 23 of the Bottled Gas Manual appeared in the January and February issues of Butane-Propane News, pp. 26 and 38, respectively, Part 3, published herewith, has the questions and answers for the entire chapter.—Editor.

#### *Circulating Heaters with Blowers.*

These may be of two types, the more popular of which is a circulating heater as described above with a blower attached to increase the circulation of air between the inner and outer shells. The same general rules as to location apply as to the plain circulating heater.

The second type is much the same in appearance as an automobile radiator with the fan behind it, and is usually suspended from the ceiling. Such a heater is illustrated in Fig. 3. Heaters of this type are used more in commercial buildings than in homes, and they do make possible the saving of valuable floor space. It is the usual practice to direct the flow of warm air from these heaters towards the point where cold air enters, thereby preventing it from coming into the building as well as countering the natural draft. Heaters of this type are always equipped with safety pilots and thermostatic control as well as an electric switch operated by heat from the main burner, this switch shutting off the

current to the blower motor when the main burner is not in operation.

*Floor Furnaces.* Floor furnaces are nothing more or less than circulating heaters which are recessed into a hole in the floor. They may or may not be equipped with a blower. Like all other circulating heaters they should be equipped with a safety pilot and thermostatic control. A typical floor furnace is illustrated in Fig. 4. The same general rules as to location for proper circulation apply to these heaters as to the so-called one-pipe furnaces. They are usually installed where more than one room is to be heated. They require an adequate supply of fresh air for combustion from a point below the heater, and they are vented into a chimney. It is advisable to provide for a return of air from some low point in the area to be heated, and this is usually done with sheet metal conducting pipe from a register so located to the inlet side of the hot air chamber. They should never be installed without a 100% safety pilot

- The Bottled Gas Manual series by C. G. Turner, started in the July, 1941, issue of BUTANE-PROPANE News and will continue to be published monthly in chapter form until completed. This series constitutes a valuable text book and field manual that should be invaluable to everyone in the liquefied petroleum gas industry.—Editor.

and main line shut-off and a thermostat.

**Gas-Fired Steam Radiators.** Growing in popularity, enjoying all of the advantages of steam heating but freed of many of its disadvantages and limitations, is the gas-fired steam radiator. In each radiator the features of boiler, burner, thermostatic control and radiator are combined. A typical steam radiator is illustrated in Fig. 5. These radiators are made in both the vented and unvented type. When vented radiators are used a small terra cotta flue is often concealed within the walls.

One outstanding advantage of gas-fired steam radiators is that the temperature of different rooms can be exactly controlled as desired. The living room can be a comfortable 70°, the bathroom 80° and the game room a healthy 65°. While this same flexibility may also be obtained with several circulating heaters, the gas-fired steam radiator provides an even heat not obtainable with other heaters excepting those of the hot water type. This is because of their heavy cast iron construction which stores up heat during the period of burner operation and gradually releases it when only the pilot light is in operation. Safety pilots and thermostats should be a part of every gas-fired steam radiator installation. Steam radiators are usually located on the exterior or exposed wall of the room and beneath the windows, but they may be elsewhere located if the situation demands it.

**Hot Water Space Heaters.** Public acceptance of space heating by

hot water has been retarded by its higher first cost. This higher first cost is due to the fact that whereas a steam radiator heated to 215° at 1 lb. pressure in a room with a temperature of 70° F. gives off approximately 240 B.t.u. per sq. ft. of radiating surface per hour, a hot water radiator heated to the customary 70° gives off only 148 B.t.u. per sq. ft. of area under like conditions. This means that 62.1575% more radiation must be provided for hot water space heating than for steam space heating. The installation cost is further increased if a return pipe system is used.

To offset this disadvantage of higher installation cost the hot water space heater provides an even



Fig. 2. A plain, circulating heater which may be vented or unvented. (Courtesy of Estate Stove Co.)

heat which is absolutely not obtainable in any other type of heater. By the use of throttling instead of snap action thermostats a micro maintenance of desired temperatures may be maintained.

A hot water space heating system is nothing more or less than a simple side arm or storage water heater connected by pipes to radiators. The hot water outlet of the heater must be located an appreciable distance below the top of the lowest radiator, and a vented expansion tank must be installed at a point above the entire system. The simplest type of such a system is illustrated in Fig. 6.

Side arm water heaters are also used as boosters for existing hot

water space heating installations. Such a heating plant in its simplest form is shown in Fig. 7. The capacity of an undersized or overtaxed heating plant can be greatly increased by this method, and thermostatic controls may be installed so that the side arm heater will automatically come into operation when the demand for heat requires it.

*Arrangement of Controls.* The arrangement of thermostatic and safety controls upon a hot water space heating installation is not unlike that of an automatic water heater with the addition of a room temperature control or thermostat. The hot water temperature and room temperature thermostats are

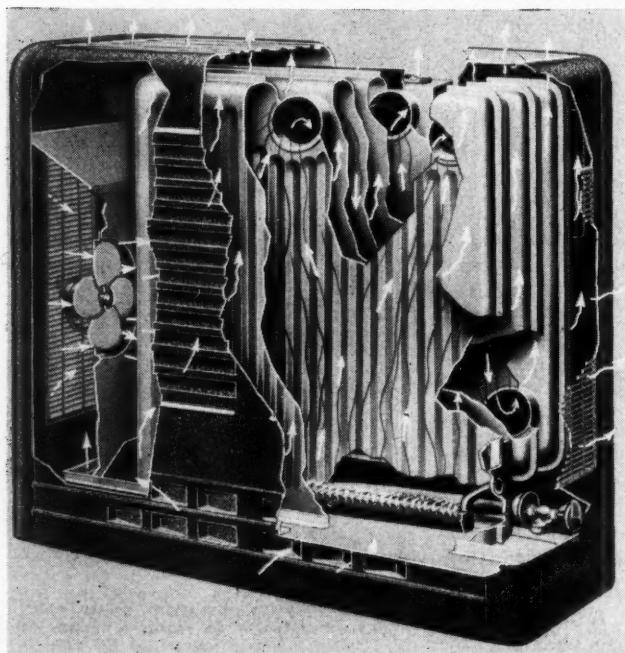


Fig. 2-A. A fan-forced air conditioning heater, showing blower. (Courtesy of Estate Stove Co.)

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## FOR INCREASED L-P GAS SALES AFTER THE WAR



*--Start telling your customers about  
Gas Refrigeration today!*

LIKE other L-P gas men, you are going to want to step up your profits as soon as possible after the war. You can best do this by selling new gas appliances to your present customers. This way you will increase your L-P gas load, and at the same time you'll lower sales and delivery costs.

What can you do about it today? First, keep customers enthusiastic about their present appliances.

Second, start talking about gas refrigeration to your customers now. Then, when you can sell L-P gas refrigerators again, you'll find that you have your customers already sold.

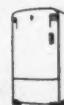
Remember, telling your customers about L-P gas refrigeration today will also stimulate the sale of other L-P gas appliances... and publicize in the best way the modernity of L-P gas.

SATISFIED CUSTOMERS TODAY MEAN . . . MORE PROSPECTS TOMORROW

**SERVEL, Inc.**

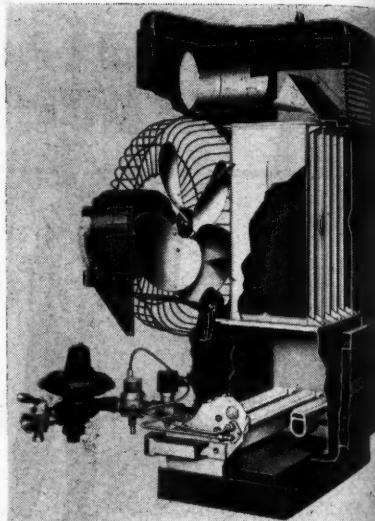


PEACETIME MAKER OF THE SERVEL GAS REFRIGERATOR



connected in series. Typical control assemblies are illustrated in Figs. 8 and 9. In Fig. 8 is shown a combination of electric, thermocouple, and expansion-contraction controls. In Fig. 9 an arrangement of 100% thermocouple controls is illustrated.

*Determining the Correct Size of Water Heater For a Space Heating Job.* The B.t.u. demand out-put for space heating is the same, whether the heating plant is steam, hot water, or of the circulating hot air type. Only in the matter of square feet of radiation required and the amount of heat transfer per square foot of radiation per hour do steam and hot water heating plants differ in figuring. The efficiency of the water heating unit enters into calcula-



Cut-away view of unit gas heater.  
(Courtesy of Reznor Manufacturing Co.)

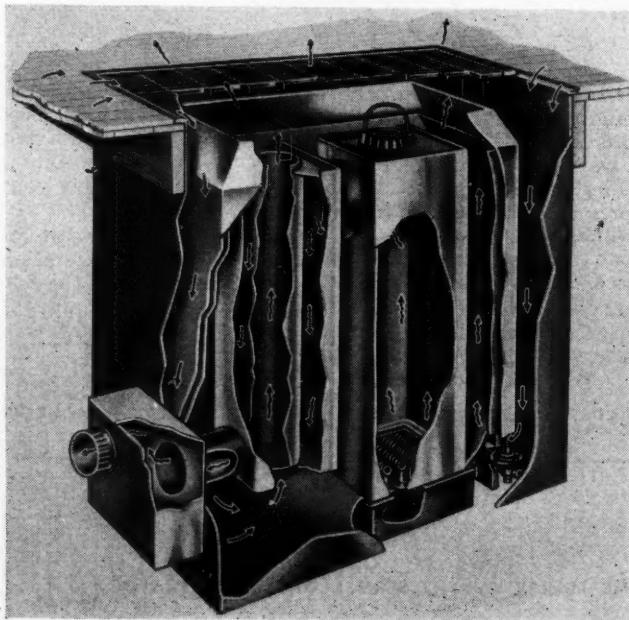
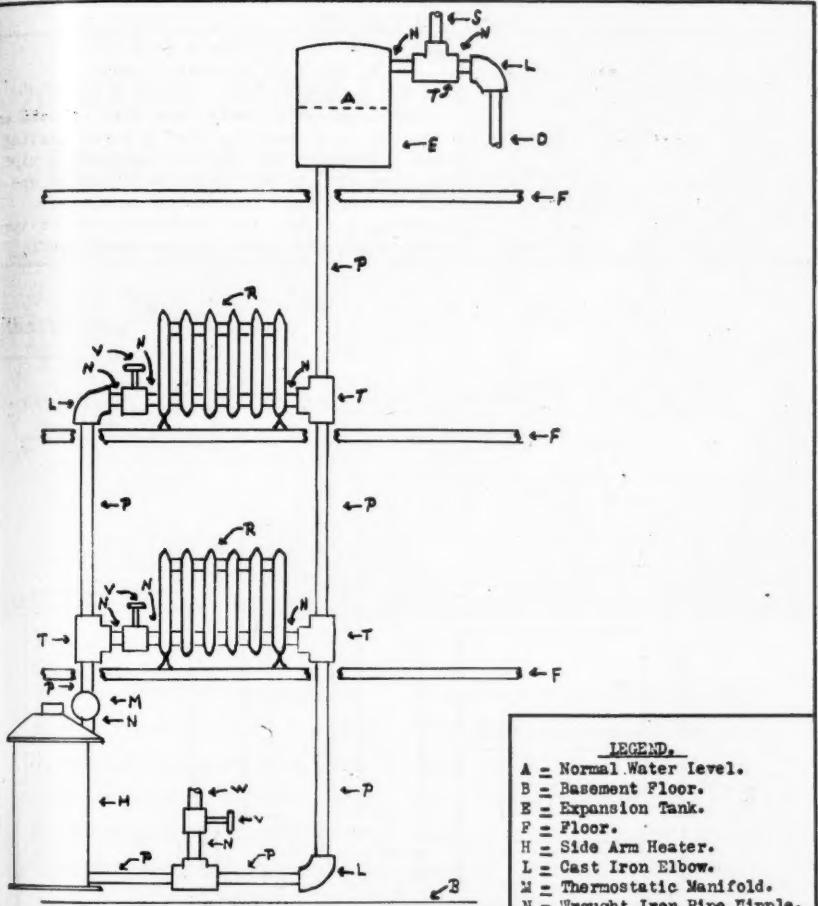


Fig. 4. Floor furnaces like this may be used with or without blowers. (Courtesy of Hotstream Heater Co.)



SKETCH OF A SIMPLE HOT WATER SPACE-HEATING SYSTEM  
USING A SIDE ARM HEATER AS A HEATING  
UNIT.

LEGEND.

- A = Normal Water Level.
- B = Basement Floor.
- E = Expansion Tank.
- F = Floor.
- H = Side Arm Heater.
- L = Cast Iron Elbow.
- M = Thermostatic Manifold.
- N = Wrought Iron Pipe Nipple.
- O = Overflow Pipe.
- P = Wrought Iron or Steel Pipe.
- R = Radiator.
- S = Syphon-Breaker Pipe.
- T = Cast Iron Tee.
- V = Valve. (Globe or Gate Type).
- W = Water Supply Line.

FIGURE 6

**SKETCH SHOWING USE OF SIDE ARM WATER HEATER AS A BOOSTER IN A HOT WATER SPACE HEATING SYSTEM.**

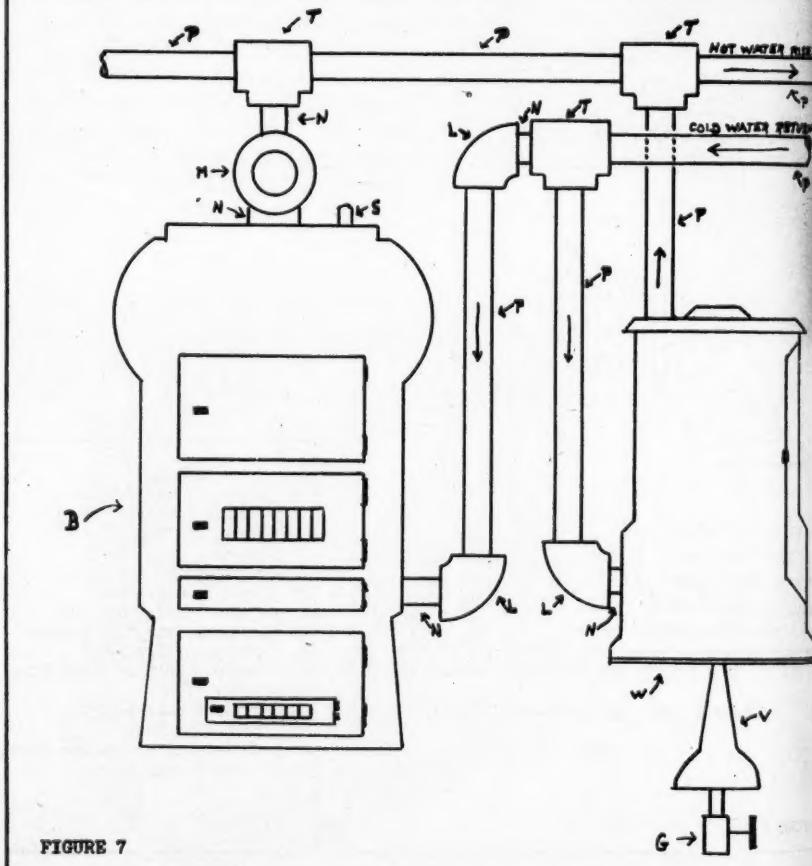
**LEGEND.**

B = Hot water heating plant.  
 G = Gas valve.  
 L = Pipe ells.  
 M = Hot water manifold  
 N = Pipe nipple.  
 P = Hot water pipes.  
 S = Safety relief valve.  
 T = Pipe toes.  
 V = Venturi gas mixing tube.

W = Gas side arm water heater.

**NOTE.**

A side arm water heater can also be used as a booster in connection with a steam heating plant providing that the top connecting pipe runs directly to the steam boiler on an upgrade without any traps or pockets,—also providing that the top connection enters the boiler below the lowest water level used.



**FIGURE 7**

**ROBERTSHAW ON  
20 RADIO PROGRAMS  
COAST TO COAST!**



Twenty leading women's service programs over 36 stations in leading range markets from coast to coast are being used by Robertshaw to carry its message to millions of homemakers many times each week.

These radio programs tell how

Robertshaw Oven Heat Controls can aid in wartime fuel and food conservation. At the same time, they are educating homemakers to look for the advantages of Robertshaw Oven Heat Controls when ranges are again available.

# Robertshaw



ROBERTSHAW THERMOSTAT COMPANY • YOUNGWOOD, PENNSYLVANIA

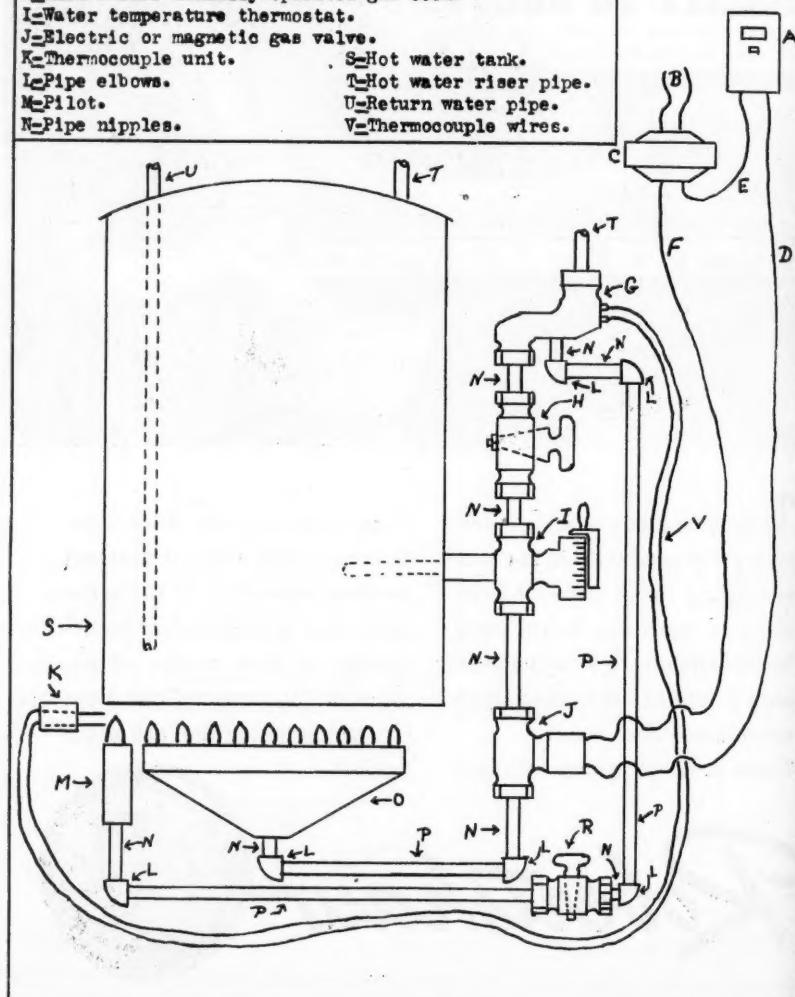
E New MARCH - 1944

SKETCH SHOWING WIRING AND VALVE ARRANGEMENT USING PILOT GENERATOR WITH 100% SAFETY SHUT-OFF VALVE, MECHANICAL WATER THERMOSTAT, ELECTRIC ROOM TEMPERATURE THERMOSTAT AND MAGNETIC VALVE ON A HOT WATER HOUSE HEATING JOB.

- |   |                          |
|---|--------------------------|
| A_Room thermostat.                                      | O_Main gas burner.       |
| B_Electric power circuit.                               | P_Gas piping.            |
| C_Transformer.  | R_Manual pilot gas cock. |
| D_Room thermostat-to-electric gas valve wire.           | S_Hot water tank.        |
| E_Room thermostat-to-transformer wire.                  | T_Hot water riser pipe.  |
| F_Transformer-to-electric gas valve wire.               | U_Return water pipe.     |
| G_Electric or magnetic gas valve.(100% safety shut-off) | V_Thermocouple wires.    |
| H_Main burner manually operated gas cock.               |                          |
| I_Water temperature thermostat.                         |                          |
| J_Electric or magnetic gas valve.                       |                          |
| K_Thermocouple unit.                                    |                          |
| L_Pipe elbows.  |                          |
| M_Pilot.  |                          |
| N_Pipe nipples.   |                          |

FIGURE 8

SKETCH SHOWING WIRING AND PIPING DIAGRAM OF PILOT GENERATOR IN CONNECTION WITH 100% SAFETY SHUT-OFF.



SKETCH SHOWING WIRING AND PIPING DIAGRAM OF PILOT GENERATOR IN CONNECTION WITH 100% SAFETY SHUT-OFF.

## MAGNETIC VALVE, WATER AND ROOM THERMOSTATS ON A HOT WATER-SPACE HEATING INSTALLATION \*

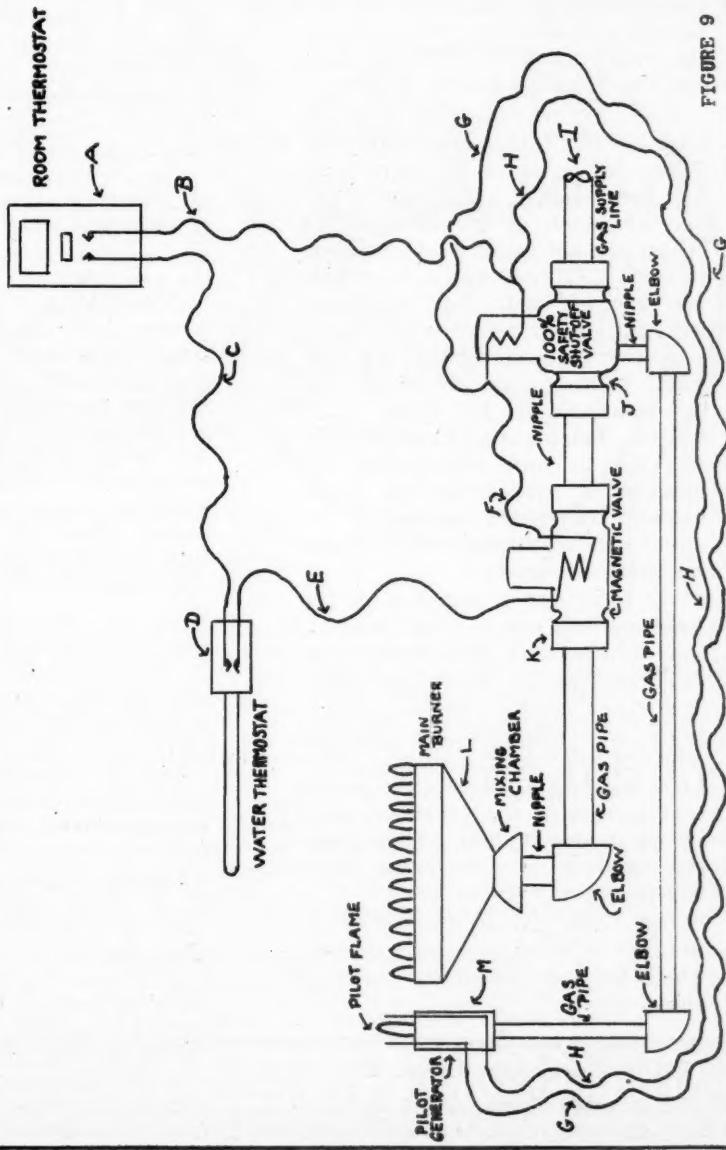


FIGURE 9

heating unit to be used, then using the per cent of efficiency as a whole number (not a decimal), divide the required out-put in B.t.u. by the per cent of efficiency and multiply the result by 100. This will give you the required heater in-put.

*Figuring the Seasonal Heating Cost for Hot Water Space Heating.* There are formulas for doing this, but they require additional tables, and inasmuch as the efficiency of steam and hot water heating plants is very nearly the same, why burden yourself with this additional information to remember? I suggest that you determine the seasonal heating cost by using the same formula as for steam space heating, being sure, of course, that you use in your calculations the number of square feet of steam radiation necessary instead of the number of square feet of hot water radiation necessary.

We have merely touched on the fundamentals of a vast subject, this evening, but if we know these fundamentals by heart and apply them in a common sense manner, there are precious few heating jobs but what we can safely figure. Let's not lose sight of this important section of the propane industry as a load builder. When properly sold it is a valuable asset which will pay us well.

Now, let's ask a few questions in order to know how much of that which we have discussed has been absorbed.

### Questions on Chapter 23

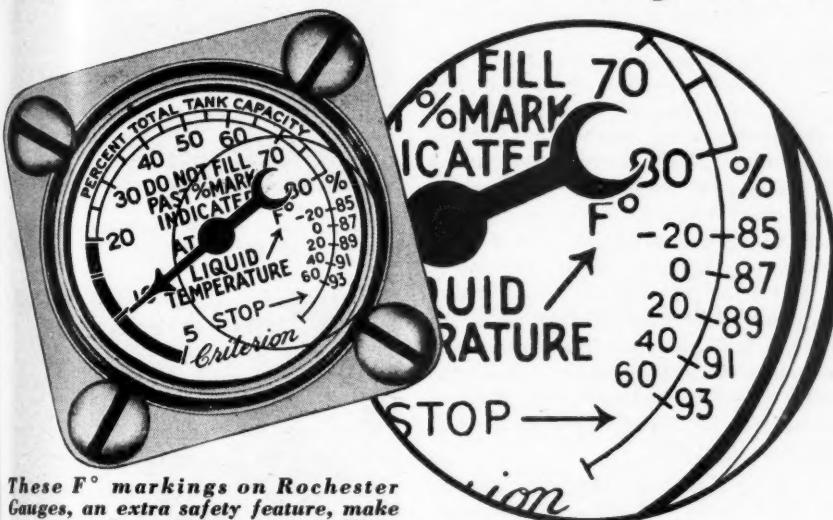
1. A room measuring 12 ft. by 20 ft. and 8 ft. high with one

of the 12-ft. walls exposed, is to be heated. It is located in Spokane, Washington. There are 10 sq. ft. of glass in it, and the room above it is heated but the one below it is not. How many square feet of steam radiation would be required?

2. How many times greater is the heat loss through 1 sq. ft. of glass than through 1 sq. ft. of outside wall?
3. How many B.t.u.'s per hour is the accepted basis for figuring the amount of heat transference per square foot of steam radiation?
4. How many B.t.u.'s per hour is the accepted basis for figuring the amount of heat transference per square foot of hot water radiation?
5. What is meant by "Degree Days"?
6. What is the "Gas Requirement Factor"?
7. What four general types of space heaters are available for the buying public?
8. One distributor of propane is selling heating gas at 5.34 cents per lb. His competitor wishes to establish an equal price basis per therm. At what price per therm should he sell gas?
9. A certain job requires 160 sq. ft. of steam radiation. The building is uninsulated. How much can this be cut down if a total insulating job is done, including weatherstripping of doors and windows?
10. A certain job requires 200 sq. ft. of steam radiation. How many square feet of hot water radiation would it require?

# ROCHESTER L-P GAUGES

eliminate "put and take" tank reading methods



These  $F^{\circ}$  markings on Rochester Gauges, an extra safety feature, make it easy to determine maximum filling density for various liquid temperatures.

Opening a tank and taking a reading is a laborious and hazardous method of making tank readings. And there's no need for continuing that time wasting method when Rochester L-P Gauges eliminate all that work and hazard as well. There's no possibility of gas leakage and consequent danger where Rochester L-P Gauges are installed. They work on a magnetic principle so that there is no shaft connection passing through the head of the gauge and no escape of gas even should the durable glass be accidentally broken. There's little chance of building up dangerous pressure by over filling, because

the safe level for various liquid temperatures is indicated by the filling scale on the dial. With Rochester Gauges installed, your filling job is safe, continuous and speedy.

Rochester L-P Gauges are listed as standard by Underwriters Laboratories. They are built for underground and above ground systems, I.C.C. and A.S.M.C. cylinders and bulk storage plants.

Rochester Engineers will welcome a request from you for help on any gauging problem. Our experience, gained from building over 18,000,000 gauges may be of help to you.

**ROCHESTER MANUFACTURING CO.**

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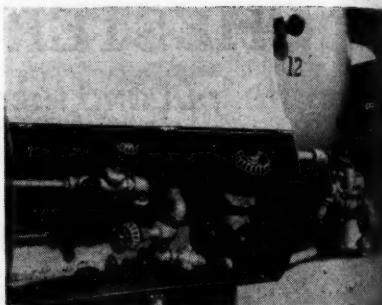
**ROCHESTER** *Individually Calibrated  
GUARANTEED ACCURATE* **INSTRUMENTS**

FOR ACCURATE LIQUID-LEVEL, PRESSURE and TEMPERATURE INDICATION

## Tank Truck Will Speed Deliveries

DEVELOPED for the rapid delivery of liquefied petroleum gas to war factories, oil drilling rigs and other large users in the Los Angeles area, a new, high pressure tank truck of 1685 gals. capacity has recently been delivered to the California Butane Co. by the American Pipe & Steel Corp., of Alhambra, Calif. The job is a variation of several tank trucks built by American in that it is intended for operation from bulk plant to consumer instead of from refinery to bulk plant, according to J. Warren McMillan, Jr., American Pipe & Steel district manager.

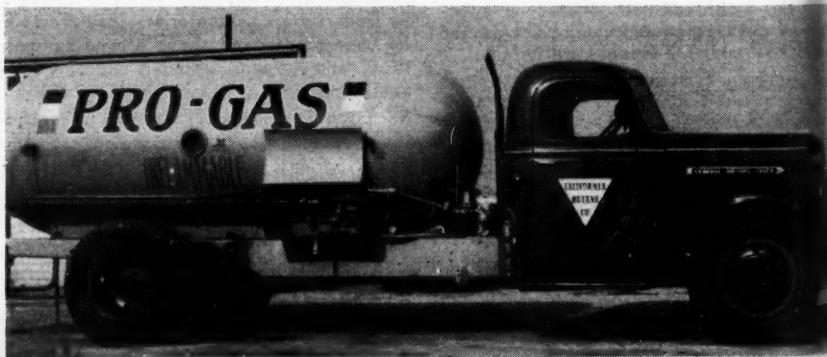
The California Butane Co., located at 2900 Santa Fe Ave., Los Angeles, was formerly Crook Co., and serves Bu-Gas and Pro-Gas, Standard Oil products, to an extensive area in southern California. Geo. Brereton is chief engineer of the company and



Vapor return, by-pass discharge and fill line valves and fittings for truck tank.



A close-up of the Smith Precision pump, located under the tank, used for pumping out of storage and making transfers to customers' containers.



The 1685-gal. combination butane and propane delivery tank truck recently acquired by the California Butane Co.

A. A. Bewley is manager of the butane department.

The new delivery tank truck has a butane capacity of 1685 gals. or holds 1595 gals. of propane. It has a 2-in., direct-driven, No. 211 Smith Precision pump; a 1½-in. Smith meter; a 1-in. by-pass valve, and a 1-in. differential valve. The delivery rate is 40 gpm. with by-pass set to 35 lbs. differential pressure.

The tank is mounted on a GMC 505 chassis. Pumping and metering equipment was installed to conform to city, county and state safety regulations. The tank is built in accordance with API-ASME codes and calibrated by Los Angeles county department of weights and measures.

All tank openings are equipped with excess-flow check valves. The by-pass from the pump is piped directly back to the tank to eliminate any vapor collecting in the pump and causing excessive wear.

The delivery hose is permanently connected to the metering equipment, thereby avoiding any excess loss of

fuel when disconnecting after the filling operation. This is a major safety feature when delivering fuel into congested areas, as by this means the escape of fuel when disconnecting from customer's tank is negligible.

The control equipment, such as fittings, rotary gage, valves, meter, fire extinguishers, etc., are all centralized for fast, safe operation, and the pump, meter and manifolding are readily accessible for repairing if, and when, needed. Extreme care in design has resulted in proper load distribution to get maximum tire wear.

### Postwar Plan for Industry Set Out by Louis Ruthenburg

Louis Ruthenburg, president of Servel, Inc., Evansville, Ind., in a speech made before the Youngstown, Ohio, Economic and Business Foundation Forum on Feb. 17, stressed methods of achieving postwar prosperity through reduced costs, low prices and high values, and outlined the following six-point program for industry:

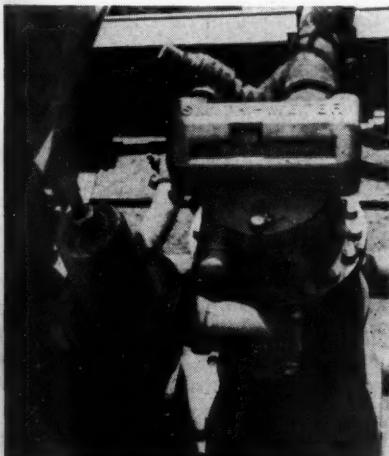
1. Improved product design which would make use of wartime development in materials.
2. Increased real wages through productivity obtained by mechanization.
3. Sustained production.
4. Production incentives for labor.
5. Better supervision.
6. Increased worker education.

### U. S. Wants Uniform Policy In Selling Furnaces

The desirability of a uniform government policy for the disposal of the large stock of surplus government-owned heat treating furnaces was discussed at a meeting of this committee with WPB representatives.

Value of surplus government-owned furnaces is estimated at \$300,000,000.

LP-Gas has been used as fuel in many heat-treating operations during the last two years.



A close-up of the Smith meter for measuring transfers of butane and propane to customers.

# CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry.

**Measuring the Flow of Fluids**—William Goodman. "Heating, Piping and Air Conditioning," Nov., 1943, pp. 596-598. Part 4. The accuracy of flow measurement depends entirely upon how accurate the flow coefficient K of the orifice is known. With methods presented in this article, the flow coefficient K can be found directly once the pressure drop across the orifice has been measured by means of a manometer. Furthermore, in this article all of the practical data needed to select and use orifices and manometers are given.

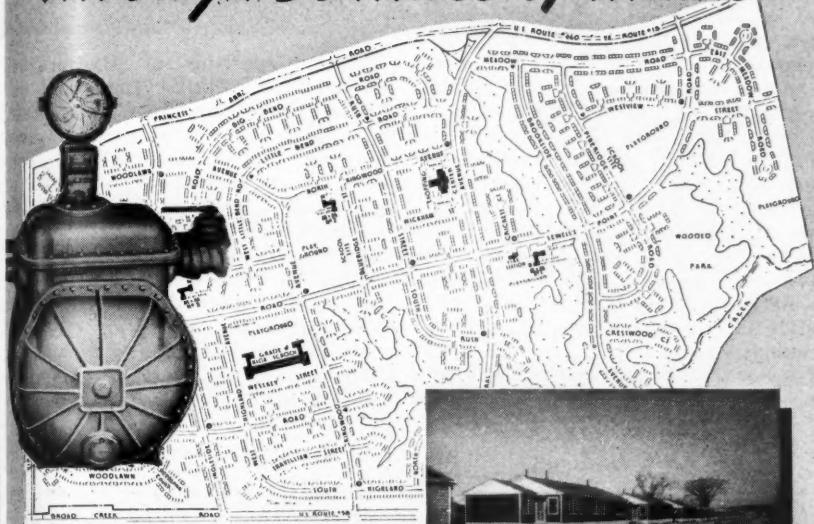
**Pressure Extension Chart for Orifice Meters**—W. F. Martin. "Petroleum Engineer," Nov., 1943, pp. 63, 64. Chart designed for simple and rapid computation of measurement values.

**The Use of Natural Gas Components in Refinery Operations**—A. H. Boulbee. "California Oil World," 2nd Nov. issue, 1943, pp. 17, etc. The modern trend in petroleum refining involves the separation of stocks into individual compounds of classes of compounds by blending directly into finished products or as raw materials for specific chemical processes. This trend is discussed from the viewpoint of its application to the present uses of natural gas and stabilized natural gasoline. The requirements for war have accelerated this trend in the direction of producing war materials such as aviation gasoline and

this aspect is emphasized in the discussion. The dependence of the production of high-octane components for aviation gasoline on iso- and normal butane from the natural gas is illustrated. The production of toluene and the possible production of chemicals and butadiene from natural gas are briefly outlined.

**High-Pressure Absorption of Low-Boiling Hydrocarbons**—C. G. Kirkbride and J. V. Bertetti. "Industrial and Engineering Chemistry," Dec., 1943, pp. 1242-1249. Equilibrium constants are reported for methane, ethane, propane, n-butane, and n-pentane in three types of absorbing oil. The range of pressure was 125 to 3100 lbs. per sq. in., and the average temperature about 85° F. These three types of absorbing oil were paraffinic, naphthenic, and aromatic. The equilibrium constants at a given pressure and temperature are dependent upon the type of lean oil used. For the same pentane recovery at pressures above 1500 lbs. per sq. in. the naphthenic type lean oil should absorb less methane than the paraffinic. Above 1750 lbs., however, the aromatic type should absorb less methane than the naphthenic. A higher lean oil rate would be required for aromatic type than either naphthenic or paraffinic, but the lean oil loss by vaporization into the lean gas with aromatic type would vary between 67 and 45% of that for the paraffinic type at pressures of 1500 to 3000 lbs., respectively. At pressures around 125 lbs. the paraffinic type lean oil is superior, both with respect to volume of lean oil

# MASTER-METERING *Through 30 miles of mains*



Broad Creek Village, developed and managed by the FPHA, will shelter more than 3000 families of Government employees or those engaged in essential war industries. Modern Gas Company, Inc. installed the LP-Gas system and provides the service.



At the Broad Creek Village housing project in Norfolk County, Virginia, domestic LP-Gas is distributed over an area of  $1\frac{1}{4} \times \frac{3}{4}$  miles at approximately 10 lbs. per sq. in. pressure.

Accuracy of the over-all gas measurement is essential to the proper maintenance of total cost-control figures. The ability of the key meter to take care of itself without pampering is another important factor in its selection.

This master meter—housed in the control building—is the Metric-American 500-B Ironcase LP-Gas Meter, equipped with Base Pressure Index and Volume and Pressure Gage. A Reliance-American H.P.C. governor also is employed in flow control.

\* \* \*

The several types of Metric-American Ironcase Meters, a "heavy-duty" line adopted to handling various different gases, are covered in our Catalog EG-40. Meters of all sizes and pressures.

2033

METRIC METAL WORKS • ERIE, PENNSYLVANIA

**AMERICAN  
METER COMPANY**  
INCORPORATED 1878

required and to less methane absorption for the same pentane recovery.

**The Catalytic Isomerization of Paraffin Hydrocarbons. I. Butanes**—P. A. Leighton and J. B. Heldman. "Journal of American Chemical Society," Dec., 1943, pp. 2276-2280. The homogeneous liquid phase isomerization of n-butane was studied, using special precautions to insure control of conditions. Aluminum bromide and hydrogen bromide mixtures were employed as catalyst. The reaction is chemically clean-cut. Completely anhydrous aluminum bromide has no action on n- or i-butane, but traces of moisture are sufficient to engender isomerization in the presence of the halide. From the rate studies it is concluded that  $\text{HA}_1\text{Br}_4$  is the true catalytic agent in this case. The apparent activation energy for the

isomerization of n-butane is 9.2 kcal/mole. From the rate constant and activation energy, a temperature-independent rate factor of 10<sup>5.4</sup> is calculated. This is very much smaller than predicted from collision rate considerations.

**Heat Capacities of Hydrocarbon Gases**—D. R. Stull. "Industrial and Engineering Chemistry," Dec., 1943, pp. 1313, 1314. Tables are given showing hydrocarbon critical constants, and molar heat capacities of hydrocarbon gases at one atmospheric pressure.

**Chemical Digest**. Semi-annual publication of Foster D. Snell, Inc., 30 Washington St., Brooklyn 1, N.Y. It contains miscellaneous accounts of chemical discoveries and developments in many fuels. Sent free upon request.

THE NATIONALLY KNOWN LPG LINE

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- AIR-COOLED CABINET  
Patented Safety Feature.
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ARCH - 1944

# Spread HEAD



● **Ransome** Spread Head Upshot Burners direct the gases of combustion over an unusually wide area . . . providing a spreading vertical flame which imparts a wiping action to the casing of a boiler or furnace. Recommended for large cooking kettles; soap vats; okite cleaning vats; battery composition, tar and asphalt kettles; boilers and furnaces. Burner consists of a head, venturi, air shutter, and spud. Available in five different sizes. Inquiries are solicited.

## RANSOME COMPANY

*Designing and Constructing Engineers*  
**4030 HOLLIS STREET • EMERYVILLE, CALIFORNIA**

*Ransome*

## Cast Iron Boilers Get 1940 Production Rating

Production of cast-iron boilers during 1944 equal to 100% of the number produced in 1940 was provided for Jan. 1 by WPB in an amendment to L-187.

Under the revised order, the definition of cast-iron boilers includes boilers to provide heat for the interior of structures, for processing, or for domestic hot water supply.

## ODT Simplifies Records For Fleet Operators

Amendment 1 to Administrative Order ODT 9 establishes a simplified system of record-keeping by operators of motor truck fleets for required information on mileage, motor fuel, loads transported, tire inspection and idle equipment. Operators of property carrying vehicles may now

record such information for all their vehicles, rather than for each individually.

The amendment also permits operators to make the records (except for tire inspection) in any convenient form and covering monthly periods if weekly accounts are not practical.

## Quick Reference Catalog For Those Who Need Valves

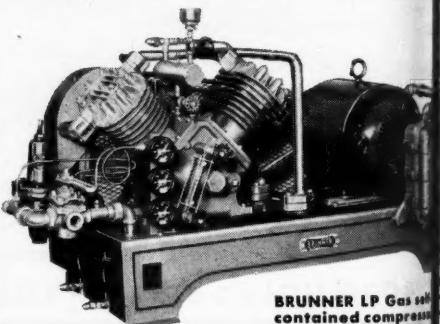
A catalogue of 30,690 new surplus steel valves of various sizes and types has been published for the use of war contractors or others, the War Production Board announced Feb. 2.

The list was published by the Sunplus Program Section of the WPB Redistribution Division in cooperation with the Metals Reserve Co. It indicates the types of valves, catalog specifications, manufacturers' names and state location.

## When you UNLOAD TANK CARS make sure they're EMPTY!

After all liquid petroleum has been transferred from a tank car or tank truck there is still a considerable quantity of vapor left in the tank. This cannot be recovered by a liquid pump. This vapor amounts to from 500 to 1000 lbs. of LP Gas in every tank car unloaded! You pay for this lost poundage as well as its transportation!

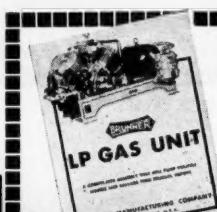
This vapor can be recovered with the Brunner LP Gas Unit, a compressor assembly that pumps volatile liquids and recovers their residue vapor. It is a package unit that is outstanding in speed, efficiency, safety and low cost. Brunner Manufacturing Company, Utica, New York, U. S. A.



BRUNNER LP Gas unit contained compressor unit, 4 cylinder, 5 h.p.



For over 36 years the Symbol of Quality



### WRITE FOR THE NEW FREE BOOK

It describes the Brunner LP Gas Unit and contains more illustrations, tables and valuable information on the handling of LP Gas.

any booklet ever issued.



# Handbook BUTANE-PROPANE GASES

481 Pages of Up-to-Date LP-Gas Information, Charts, Diagrams and Photographs

\$5<sup>00</sup>

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### PART 1. INTRODUCTION

Chapter 1: The Progress of the Industry and the History of its Development.  
Chapter 2: The ABC of LP-Gas, an Introduction to LP-Gas Operations.

### PART 2. PHYSICAL AND CHEMICAL PROPERTIES

Chapter 1: Properties of the Hydrocarbons in LP-Gas.  
Chapter 2: Properties of Butane-Propane Mixtures.  
Chapter 3: Volume Correction Factors.  
Chapter 4: Analytical Determination and Testing.

### PART 3. PRODUCTION OF LP-GAS

Chapter 1: Natural Gasoline Plants, Recycling Plants, Oil Refineries.

### PART 4. TRANSPORTATION AND STORAGE

Chapter 1: Delivery by Truck, Rail, Water, and Pipe Line.  
Chapter 2: Storage Tank and Pressure Vessel Design.  
Chapter 3: Liquid Metering and Pumping Systems.

### PART 5. DISTRIBUTION OF LP-GAS

Chapter 1: Installing and Servicing LP-Gas Systems.  
Chapter 2: Semi-Bulk Systems.  
Chapter 3: Bottled Gas Systems.

We pay postage on orders accompanied by check or money order. In California add 13c for sales tax. In Canada add 50c for excise tax.

Chapter 4: Gas Utility Service From Central Plants.

Chapter 5: Multiple Utility Service From a Central Plant.

### PART 6. UTILIZATION OF LP-GAS

Chapter 1: Comparative Performance With Other Fuels.  
Chapter 2: Appliance Installation and Testing.  
Chapter 3: Domestic Applications.  
Chapter 4: Commercial Applications.  
Chapter 5: Industrial Applications.  
Chapter 6: Enrichment, Peak Load and Stand-by Uses.  
Chapter 7: A Fuel for Internal Combustion Engines.

### PART 7. REGULATIONS

Section 1: N.B.F.U. Pamphlet No. 58.  
Section 2: Motor Carrier Regulations.  
Section 3: Freight Regulations.  
Section 4: Unloading Tank Cars.  
Section 5: Marine Regulations.

### PART 8. APPENDIX

Section 1: Products Liability Insurance.  
Section 2: Handy Tables for Field Use.  
Section 3: Bibliography.  
Section 4: Glossary of Terms.

### CATALOGUE SECTION

A comprehensive presentation of LP-Gas appliances and equipment by the manufacturers of the LP-Gas industry's best known products

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News**

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## BRILLIANT FIRE 3541

VENTED CIRCULATOR with unobstructed radiant heat . . . that's the Brilliant Fire Model No. 3541, the big 3-Way Economy model, for all gases, now in production.

AVAILABLE under WPB and OPA Regulations for civilian use.

WRITE TODAY for Bulletin 460 listing full line of BRILLIANT FIRE Gas Heaters . . . enclosed circulators, radiant heaters, wall models, logs, etc. . . . together with prices and discounts.

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## Gas Men Hear Publicity Plans

**T**WO meetings of the Pacific Coast Section of the LPGA, called by the new chairman, L. C. Roney, were held in February to better acquaint members with the significance of the newly launched publicity campaign which has been undertaken by the national association.

The first meeting was held in Los Angeles on Feb. 23 at the Clark hotel and the second followed on Feb. 28 in San Francisco at the Palace hotel. Both were all-day sessions.

The industry campaign is being directed by the Lawrence H. Selz Organization, publicity counsellors of Chicago, and Mr. Selz appeared at both of the meetings for the dual purpose of telling members what the undertaking means to the industry and to make first-hand contacts with the men who help to comprise it.

While it is universally believed there will be a tremendous expansion of liquefied petroleum gas markets after the war, it is also known that the electrical industry will spend great sums of money and put forth much effort to sell the rural field, according to Mr. Roney, and hence the LPGA feels that the LP-Gas industry must establish in the public mind the value, convenience and availability of its product.

At the Los Angeles meeting, which occurred just as this issue of BUTANE-PROPANE News was going to press, special speakers appeared in addition to Mr. Selz. One was P. S. Magruder, General Petroleum Corp., PAW District 5 Advisory Committee chairman, who discussed the currently vital subject of transportation, and the second was R. W. Garman of the

PAW office, who answered industry questions of members.

Lew Bewley, California Butane Co., Los Angeles, was announced as new Pacific Coast Section secretary by Chairman Roney.

The meeting showed an unusually large attendance and the group enthusiastically endorsed the new industry publicity campaign.

## November Natural Gasoline Production Broke All Records

Petroleum Administrator for War Harold L. Ickes announced in January that an all-time high of 256,000 barrels daily of natural gasoline and allied hydrocarbon products, used in making high-octane aviation gasolines, was produced by U. S. natural gasoline and cycling plants last November, the latest month for which figures are available.

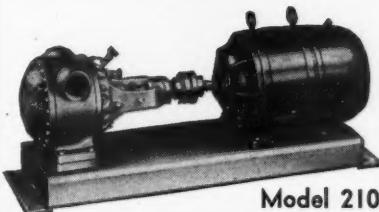
This was the third consecutive month that the natural gasoline industry broke all previous records. In October, 1943, the plants produced an average of 252,700 barrels daily of natural gasoline and allied hydrocarbon products. In September, 1943, production averaged 250,000 barrels daily. Allied hydrocarbon products include condensate, liquefied petroleum gases, and isobutane. During November, the industry also set a record production of 13,700 barrels daily of commercially pure isobutane.

## Ranges Must Comply with 558 Testing Requirements

Gas ranges must comply in detail with over 558 requirements; water heaters, 230; central heating gas appliances, 387; and gas space heaters, 270—to be approved at the AGA Testing Laboratories.

A similar number of requirements are specified in the standards for other appliances.

# SMITH BUTANE - PROPANE PUMPS



Model 210

## STANDARD EQUIPMENT

### With Leading LPG Engineers

**MODEL 210** (Above) • Capacity 50 GPM at 1750 RPM for direct connecting to electric motor.

**MODEL 211** • Capacity 50 GPM at 500 RPM for tank truck direct connected to power take-off.

**MODEL 300** • Capacity 100 GPM at 1750 RPM for direct connecting to electric motor.

**MODEL 301** • Capacity 100 GPM at 500 RPM for large transport service direct connected to power take-off drive.

•

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**FLUID SEALED PACKING BOX ELIMINATES HAZARDOUS LEAKS**

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**250 LBS. WORKING PRESSURE**

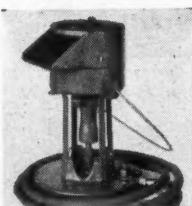
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Prompt Delivery on Complete Assemblies

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1135 MISSION ST. - SOUTH PASADENA, CALIF.

## Mutual Streamline Tinner's Furnace No. 3 A



This unit will accommodate the large soldering irons. Gives heat direct under heel of copper. Opening in top of furnace designed for lead melting pot. Unit can be used with any type of LP Gas cylinder, for field or shop.

### Mutual Liquid Gas Co.

3805 W. Imperial Hwy. Inglewood, Calif.

## National Butane Gas Co.

Memphis, Tennessee



### OUR THREEFOLD OBJECTIVE:

1st, VICTORY

2nd, SERVICE

Last, PROFIT



VICTORY, by building ONLY the equipment deemed essential by the WPB; SERVICE, by remaining in the Butane Gas Business ONLY; PROFIT, the greatest profit of all, The GOOD WILL of our customers.

## Preference Ratings Removed From Water Heaters

Both new and used direct and indirect fired water heaters may now be sold to consumers for replacement and maintenance purposes without ratings, WPB announced Jan. 22.

A purchaser need only certify to his dealer that such equipment is needed to replace equipment worn out, damaged beyond repair, or destroyed, and that it will not be used to replace usable equipment or to make a substitution that would provide more extensive facilities.

Provisions of Order L-185, water heaters, which limited sale of such equipment to orders rated A-10 or better, were revoked to bring that order into conformity with the provision of order L-79, which now controls the sale of all plumbing, heating and cooking equipment.

Order P-84, which assigned a rating of AA-5 to purchase of water heaters by consumers for replacement and maintenance, was revoked Jan. 15.

Sale of these heaters for other than replacement or maintenance purposes is still subject to WPB approval. Home-owners should apply for preference ratings on WPB Form 2631, while industrial and commercial users should apply on WPB Form 541.

Purchase of water heaters by sellers is now controlled by Order L-79, which assigns a rating of AA-3 to enable them to purchase and maintain an inventory for new installations and replacement purposes.

## Plumbing, Heating Division Gets Steam Boiler Control

Scheduling jurisdiction over steam boilers of the type generally used in plumbing and heating equipment has been transferred from the Power Division of WPB to the Plumbing and Heating Division.

## LPGA Will Study Proposed Changes in NBFU Pamphlet 58

The sub-committee of Technical and Standards Committee of the LPGA has been appointed to study and correlate proposed changes in NBFU Pamphlet No. 58. The following members constitute the sub-committee: M. G. Farrar, chairman; F. B. Boice, G. L. Brennan, and W. F. Verkamp.

All members are requested to submit their suggestions for revision of Pamphlet No. 58 to Mr. Farrar, care of the Association office, as soon as possible, as the committee hopes to correlate the suggested changes and present them to the NFPA by May 1st.

## "Pete" Miller, with Phillips 14 Years, Resigns

P. K. (Pete) Miller, associated with the Philgas Division, Phillips Petroleum Co., for 14 years, resigned Jan. 31. He plans to locate on the Pacific Coast, probably in southern California.

Mr. Miller, a graduate of Iowa State College, started with Phillips Petroleum in 1930 at its Richfield Springs, N. Y., bottling plant. From there he was transferred to Windsor, Conn., and finally in 1938, was made district manager of the South Sudbury, Mass., office. At the last named place he also had charge of sales and retail operations.

## Report Tire Shortages to Ration Boards

Truck operators who are eligible for tires, but cannot get tire certificates from their local War Price and Rationing Boards because of exhausted quotas or for other reasons, are asked to report that fact to ODT and thus enable it to determine the extent of regional tire deficits by classes of highway carriers and by tire-size groups.

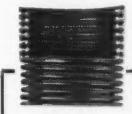
# L-PG RESISTANCE!



## REX-FLEX STAINLESS STEEL FLEXIBLE TUBING IS NON-CORROSIVE

REX-FLEX Stainless Steel Flexible Tubing was designed by Chicago Metal Hose Corporation to meet exacting military requirements. Its proved ability to successfully handle many types of corrosive gases and liquids, and extreme heat, makes REX-FLEX equally desirable for the solution of your corrosion problems.

REX-FLEX is available in five wall forms, braided or unbraided. Fittings are resistance seam-welded to form uni-metal assemblies. Write for complete information today.



REX-FLEX  
STAINLESS  
STEEL  
FLEXIBLE  
TUBING

### Note These Features

- Corrosion Resistance
- Extreme Flexibility
- Pressure Tightness
- Withstands Extreme Temperature
- High Fatigue Resistance

Flexible Metal Hose for Every Industrial Use

**CHICAGO METAL HOSE CORPORATION**  
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Plants: Maywood and Elgin, Ill.

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GAS EQUIPMENT SUPPLY CO.



L.C. RONEY, INC.

meets the demands of the nation. Our plant has gone to war for the duration—but when peace comes, L. C. RONEY products for the LP-Gas industry will meet the demands of dealers everywhere. In the meantime—our stock of LP-Gas equipment is still complete.

L.C. RONEY INC.

1740-44 W 59 ST - LOS ANGELES, CALIF.

## LP-Gas Shortage Caused By Transportation Lack

Petroleum Administrator Ickes Jan. 24 assured consumers that the current nationwide difficulty in obtaining liquefied petroleum gases is a temporary one and will be corrected as soon as the specially constructed tank cars used to haul these gases can be returned to this type of service.

Length of the shortage of transportation is not definitely known. It is hoped that in the near future enough cars will be returned to LP-Gas service so that more normal delivery services can be resumed by the distributors.

In the meantime, consumers should be warned to do everything possible to conserve propane and butane.

## Copper Tubing Allowed For Needed Repair Work

A method has been established by which copper tubing may be made available for use of repairmen in repairing refrigeration, gas and oil burner, and automotive equipment, through normal distribution channels.

Directive No. 1 to CMP Regulation No. 9A, makes copper tubing available to established distributors for sale to persons engaged in the business of repairing refrigeration, oil and gas burner, and automotive equipment.

## Save Fuel and Avoid Waste Is Object of Bureau of Mines

Secretary of the Interior Harold L. Ickes today announced the appointment of a district engineer and eight more coordinators as the Bureau of Mines prepared to carry its fuel efficiency program into the industrial and commercial plants in metropolitan areas within the next few weeks.

Thousands of volunteer regional engineers are enrolled and a total of 12 coordinators named to direct their work in the principal centers.

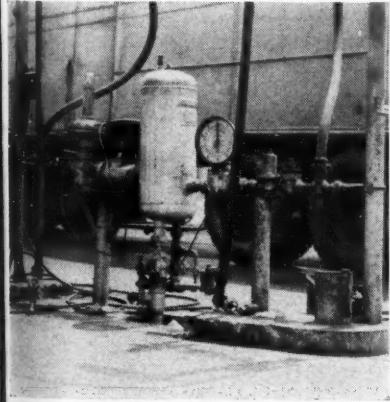
## Tire Manufacture Starts to Climb

Synthetic rubber production in January totaled nearly 50,000 tons, Rubber Director Bradley Dewey has reported.

He warned that military and essential civilian demands will, for many months, eat up the gradual rise in output which will bring production for the second half of 1944 to 75,000 tons monthly.

## Oil Compact Commission Meets In New Orleans March 31

The spring meeting of the Interstate Oil Compact Commission will be held March 31 and April 1 at New Orleans. These dates were selected at a meeting of the executive committee of the organization at Oklahoma City Jan. 22.



Automotive dispensing unit at the truck filling station of Al Finneman at Alameda and Third, Los Angeles. A Neptune Liquid meter, shown in center of picture, is used for metering General Petroleum Corp. butane. The station has a bulk storage capacity of 4300 gals., and has been established six years.

# Bu-Pro-fire

## Gas Heaters

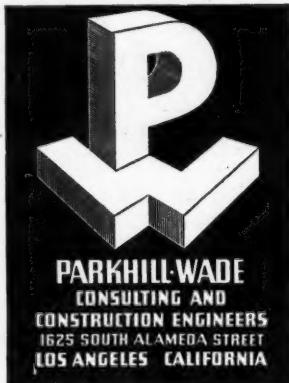
A GOOD NAME TO REMEMBER FOR GREATER HEATING EFFICIENCY WITH LIQUEFIED PETROLEUM GASES.

DESIGNED ESPECIALLY FOR L. P. GASES

S TENNESSEE ENAMEL MFG. CO. NASHVILLE 9, TENNESSEE

## Refineries and Plants

For Recovery of  
Isobutane  
N-Butane  
Propane



## THE TRADE

Cribben & Sexton Co., manufacturer of Universal Gas Ranges, Chicago, was awarded the Army-Navy "E" for excellence in war production at ceremonies at the Universal factory on Jan. 3, 1944.

During World War I, Cribben & Sexton Co. was engaged in the production of 155-mm. shells. In the present war, it has produced tank armor plate, ammunition boxes, and army hospital tables; and is currently engaged in the manufacture of high explosive shells and in making airplane sub-assemblies.

Tappan Stove Co. guards were recently presented with a guidon of merit by Lt. Col. R. H. Meyers, district chief of security and plant pro-

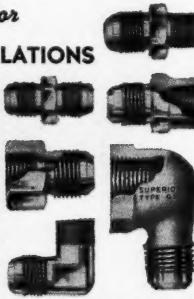
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*Especially For*

#### L.P.G. INSTALLATIONS

SAE (Flare) Unions,  
Couplings, Adapters,  
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Crosses and Nuts

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UNDERWRITERS  
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INC.



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SUPERIOR VALVE & FITTINGS CO.

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PITTSBURGH • PENNSYLVANIA



W. R. Tappan accepts the guidon of merit for the guards of the Tappan Stove Co.

BUTANE-PROPANE Ne MAR



At home and on the industrial front, a dependable source of Butane and Propane means more satisfied customers. For more than fifty years, through wars and in peace times, Carter has faithfully served. Write our Marketing Department for higher quality Butane and Propane.

DEHYDRATED

**PROPANE • BUTANE**

# The **CARTER** *Oil Company*

WHOLESALE ONLY

TULSA, OKLAHOMA

Inadequate heating gives the will-of-the-wisp drafts a chance to play leap-frog all over your plant. And the industrial records show that they have been having quite a game with the nation's war workers.

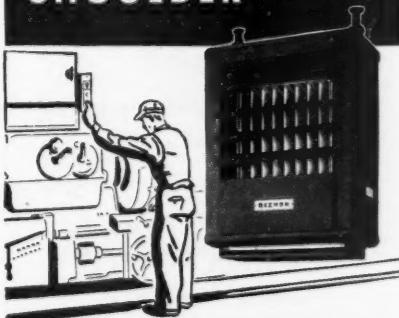
But you can eliminate all the drafts in your plant promptly, efficiently, and forever by placing Reznor Unit Heaters in the heart of your cold areas.

You may need auxiliary heat in a corner, down on the floor, or up above the machines. Wherever the location, easy-to-install Reznor Unit Heaters will deliver clean, automatic heat in just the right volume.

**Reznor Manufacturing Co.**  
304 JAMES ST. MERCER, PENNA.

## REZNOR

### UNIT HEATERS GIVE COLD THE WARM SHOULDER



"GAS HEATERS EXCLUSIVELY SINCE 1888"

tection, in recognition of excellence in "military appearance, neatness of individuals and uniforms, cleanliness and working conditions of firearms, and ability to assemble, drill and assume their posts."

The presentation was made at the company's Mansfield, Ohio, plant and W. R. Tappan accepted the guidon for the firm, then presenting it to Gilbert Oswalt, chief of the guards. W. H. Tappan, vice president, was master of ceremonies, and the American Legion Color Guard handled the raising of the flag.

Col. W. F. Rockwell, president of Pittsburgh Equitable Meter Co. - Merco Nordstrom Valve Co., recently elected to the board of the First National Bank and Peoples-Pittsburgh Trust Co., of Pittsburgh, Pa., has resigned his position as director of production for the U. S. Maritime Com-

mission in order to devote full attention to the manufacturing details of war work being done by his several interests.

**The Brunner Manufacturing Co.**, Utica, New York, has issued a new booklet covering the subject of liquid petroleum gas transfer.

Loss of gas vapors when unloading tank cars to storage has been a problem since the use of these gases became an important part of the industry, states the book, which adds that before the advent of the method described, it was the practice to recover all possible in liquid form, but the vapors—500 lbs. to 1000 lbs.—were hauled back and forth from the refinery with the attendant loss both in gas and haulage.

The booklet describes how this vapor can be recovered and methods of speeding up the emptying of tank cars or trucks. It also explains various methods of filling bottles. Many tables and pertinent data of a valuable nature for users of LP-Gas are included.

A free copy of the booklet may be obtained by writing to the Brunner Manufacturing Co.

**L. M. Hull** was recently appointed sales manager of the heating division of the Hammel Radiator Engineering Co., Los Angeles, a co-partnership composed of A. S. Martinson and S. D. Crozier. Naming Mr. Hull to his new position is one of the first steps taken in carrying out the present postwar expansion plans of the company, which includes the manufacturing of a complete line of residential, industrial and commercial gas heating equipment. National merchandising plans are now being formulated.

For the past 12 years Mr. Hull has been associated with the Payne Furn-

THE SIGN OF  
**QUALITY**



PROPANE BUTANE  
Storage Tanks Mobile  
Transport Domestic

**SUPERIOR TANK &  
CONSTRUCTION CO.**

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PROPANE - BUTANE SERVICE

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## SPRAGUE METER COMPANY

Bridgeport, Conn.

Los Angeles, Calif.

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BUTANE-PROPANE EQUIPMENT  
PUMPS—METERS—HOSE  
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REGULATORS

*Complete Dispensing Systems*



FACTORY SALES AND SERVICE  
FOR  
ROADMASTER BUTANE CARBURETION

Roadmaster Sales Corp.

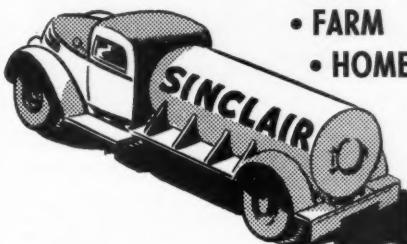
of Texas

317 So. Pearl Street Dallas, Texas

MARCH - 1944

# SINCLAIR'S PORTABLE PIPE LINE ON WHEELS . . . .

- FACTORY
- FARM
- HOME



Playing an important part in helping to win the war, most of the Liquefied Petroleum Gas now produced is being used for making 100 Octane Gasoline, synthetic rubber, and for supplying heat and power to defense plants and defense workers' homes. Domestic and industrial users, however, are still being supplied.

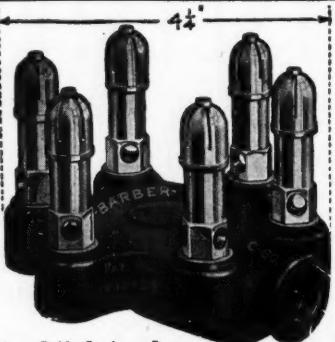
Delivered right to your customer's door beyond the gas mains, even in isolated places, Butane and Propane, which do not require critical materials and expensive piping installations, have been the answer to numerous war-time problems.

And . . . the lessons learned in war, in helping to supply the fuel for our fighting equipment all over the world, will be of universal benefit in peace.

*Protect your fuel requirements  
by contracting with*

## SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division  
Sinclair Bldg. Tulsa, Oklahoma



No. C-60 Barber Burner

## **BARBER APPLIANCE BURNERS**

Barber Units, in standard or special shapes and sizes, are correctly designed to fit the individual appliance, and give complete combustion on Butane-Propane or any other gas. Be ready for big post-war business—submit your special burner problems NOW to Barber engineers. Complete catalog on request.

**THE BARBER GAS BURNER CO.**  
3704 Superior Ave. Cleveland, Ohio

ace & Supply Co., Pacific Gas Radiator Co. (now Pacific-Airmax) and the Southern California Gas Co.

Jay Weathers, of the Barnsdall Oil Co., died very suddenly on Feb. 8, according to word received from Paul Smith, of the Anchor Petroleum Co., Tulsa, Okla. Mr. Weathers was born in Kansas 49 years ago.

American Stove Co. resumed production of gas ranges on Feb. 1 at its Harvey, Ill., plant. According to S. E. Little, vice president in charge of sales, this new range will be the model permitted under government restrictions and will be known as Model 7701-30. It will be a practical range from the cooking efficiency standpoint. Most of the Magic Chef pre-war features will be built into it, including the "Red Wheel" regulator, automatic top lighter, 16-in. oven, full insulation, 3-in-1 Magic Chef top burners and porcelain enamel finish.

*A Name  
That Stands  
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## **McNAMAR**

Tanks for  
most all L.P.G.  
requirements

## **McNAMAR** Boiler and Tank Co.

Tulsa, Okla.

Salem, Ill.



This is the government-approved gas range of the American Stove Co., now in production.

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finish.



## THOMAS Appliance Truck for Easy Cylinder Handling

- ALSO FOR STOVES, BOXES, CRATES
- PNEUMATIC RUBBER TIRES

An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

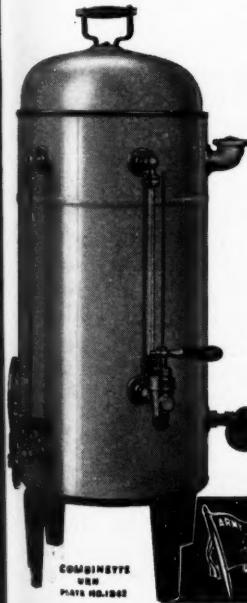
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**THOMAS TRUCK  
& CASTER  
COMPANY**



4470 Mississippi River, Keokuk, Ia.



## VICTORY "COFFEE URNS"

for butane-propane...capacities to 100 gals.

• Sturdily constructed of high quality enameling iron. Attractively finished in vitreous porcelain enamel. Liner welded to jar ring, forming one-piece crevice-free unit. Other liners available of heat-resistant glass or Hall china, sizes up to 10 gallons. Combinette urn (sizes 3 to 10 gallons) has extra capacity for hot water. Three-piece batteries and institution urns available in sizes up to 100 gallons.

SEND for PRIORITY ASSISTANCE KIT and ILLUSTRATED FOLDER Urns are sold subject to priority regulations. Kit includes instruction sheet, specimen forms to guide you and blank application forms to be filled in for preference rating. Folder contains complete specifications.

S. BLICKMAN, INC.

MANUFACTURERS OF FOOD SERVICE EQUIPMENT

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Necessary valve operating current is supplied by heat of pilot flame applied to thermocouple element. Failure of flame automatically closes valve which can be again opened by convenient push button. MR-2 is straight through gas type. Standard thermocouple length 30". Valve sizes: 3/8" to 1 1/2". Available for manufactured or liquefied petroleum gases.

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**GENERAL CONTROLS**  
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\* \* \* \* STANDARD RADIUS \* \* \* \*  
\* \* \* \* 80% RADIUS \* \* \* \*  
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DIAMETERS UP THROUGH 60"  
THICKNESS UP THROUGH 1/2"

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*The* COMMERCIAL SHEARING &  
STAMPING COMPANY  
YOUNGSTOWN, OHIO

## ANSWERS

### To Chapter 23 The Bottled Gas Manual

1. The formula is:

$$R = \left( \frac{C}{200} + \frac{G}{2} + \frac{W}{20} + \frac{F}{20} + \frac{S}{20} \right) T$$

Because the room above is heated  
 $\frac{S}{20}$  may be eliminated.

- Substituting values—

$$R = \left( \frac{(12 \times 20 \times 8)}{200} + \frac{10}{2} + \frac{(12 \times 8) - 10}{20} \right. \\ \left. + \frac{(12 \times 20)}{20} \right)$$

$$R = (9.6 + 5 + 4.3 + 12) 1$$

$$R = 30.9 \text{ Answer}$$

2. 10 times greater. Reason: the denominator of "G" is 1/10th that of "W" in the formula above.
3. 240 B.t.u. per hour.
4. 148 B.t.u. per hour.
5. The average daily heat deficiency in degrees Fahrenheit during the heating season, multiplied by the number of days in the heating season.
6. The number of B.t.u. per sq. ft. of steam radiation to be supplied for each "Degree Day."
7. Radiant, Circulating, Steam, Hot Water.
8. A pound of propane is 21,633 B.t.u. A therm is 100,000 B.t.u. It therefore takes 100,000 divided by 21,633, or 4.62

*For*

# "AFCO" Tanks

*Write the*

**ARKANSAS FOUNDRY CO.**  
IRON & STEEL

*Manufacturers of ASME U-69  
Underground Storage Tanks  
for Butane*

**Arkansas Foundry Company**

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LITTLE ROCK, ARKANSAS

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**For Safety  
and Economy**

## **ETHYL MERCAPTAN**

**Purified**

**The ACCEPTED  
standard  
odorant  
for liquefied  
petroleum  
gases.**

**MALLINCKRODT  
CHEMICAL WORKS**

ST. LOUIS

NEW YORK

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MARCH - 1944



## **How To Get The Most Work Out Of Your VIKING PUMPS**

It is absolutely essential that Viking Rotary Pumps be properly lubricated if you are to enjoy the benefit of rugged, dependable service that is built into each and every one of these units. Always use the best grade of grease obtainable for the service involved. Consult your oil company or supply house if in doubt. Our Viking experts here at the plant will be glad to submit definite recommendations if you will write and give us complete data. Remember, please, that grease is cheaper than repairs.

Get EXTRA wear out of your Viking Pumps by giving them EXTRA care. The Viking Service Manual tells you how. It's a handy, illustrated booklet giving you practical help in mounting, operating and maintaining Viking Pumps. Write for your copy today. It's FREE.



**VIKING PUMP COMPANY**  
CEDAR FALLS, IOWA

- lbs. of propane to be equivalent to one therm. A therm could therefore sell at  $4.62 \times 5.34 = 24.6708$  cents.
9. 43% of 160, or 68.8 sq. ft., of steam radiation.
  10.  $200 \times 1.62.1575 = 324.315$  sq. ft. of hot water radiation necessary.

## TANKS

*In the Pacific Northwest*

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### King Bros., Inc.

For Your Tank and Cylinder Requirements

3500 S. E. 17th Ave., Portland, Ore.

*Victory Is Everyone's Job*

#### ELECTRIC & CARBURETOR ENGINEERING CO.

"Pioneers of the Butane Industry"

For the duration of the war we are engaged 100% in manufacturing AIRCRAFT PRECISION PRODUCTS. After the war we will again present our regular lines and solicit your patronage.

ELECTRIC & CARBURETOR ENGINEERING CO.  
2323 E. 8th St. — Los Angeles

**HOT Water**  
**UNITED STATES**  
*Automatic Water Heaters*  
Approved by A.G.A. for  
Liquefied Petroleum Gas  
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COMPTON, CALIFORNIA

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MANAGER PROPANE COMPANY SERVING 4000 customers interested locating in Florida, preferably Miami. Ten years gas appliance sales experience. Classification 1-A-H. Box 24 BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, Calif.

#### EQUIPMENT WANTED

WANTED—A TRANSPORT SEMI-TRAILER for Propane. Box 190, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, California.

WANTED—PROPANE STORAGE TANK suitable for 200 to 250 lbs. pressure, 10,000 to 30,000 gal. capacity. Hercules Gasoline Co. Inc., Box 764, Cedar Grove Station, Shreveport, Louisiana.

WE BUY WET AND DRY GAS CYLINDERS bulk plants, regulators, cylinder valves, meter truck tanks. Box 495, Syracuse, New York.

#### EQUIPMENT FOR SALE

ONE 3000 GALLON PROPANE TANK; 600 and 12,000 gallon Butane tanks. Write Power Construction Company, Minneapolis, Minnesota.

#### Copper Inventory Stocks Freed by WPB Order

Frozen inventories of copper and copper base alloy pipe, tubing and fittings in the hands of utilities were freed Jan. 24, the War Production Board announced, for use in underground gas and water supply and distribution installations outside buildings.

The amended order makes available the frozen stocks of water and gas utilities as of January 1.

BUTANE-PROPANE News

Specify

# AMERICAN HIGH PRESSURE TANKS

For special LPG transport units, American experience combined with quality material and mastercraftsmanship, offer dependable, economical high pressure tanks—standard sizes or tanks made to individual specifications.

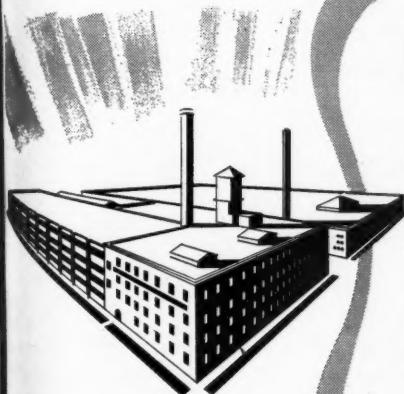
American high pressure tanks are made under API and ASME Codes and equipped with all accepted safety features.

AMERICAN

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Manufacturers and Distributors

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*Today*  
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*Tomorrow*  
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The precision workmanship, skillful engineering and production ingenuity, now devoted to the war effort, will tomorrow be reflected in new and finer Humphrey Appliances—big values in quality and beauty.

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American Stove Co.....	—	National Butane Gas Co.....	66
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